

TEAM LOSI LX-T—Cruisin' for a Bruisin'

# Radio Control **CAR ACTION**

THE WORLD'S PREMIER R/C CAR MAGAZINE

47380



September 1992

## HOT RACE SPECIAL!

- KYOSHO GAS OFF-ROAD CHAMPS
- SPEEDWORKS SPORTSMAN CUP
- ROAR 1/12-SCALE NATS
- CACTUS CLASSIC



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09



# Radio Control CAR ACTION

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*Radio Control Car Action* (ISSN 0886-1609) is published monthly by Air Age, Inc., 251 Danbury Rd., Wilton, CT 06897. Second Class postage paid at Wilton, Connecticut, and at additional mailing offices. Subscription rates are 1 year (12 issues) \$29.95; (foreign \$42.95); 2 years (24 issues) \$54.95; (foreign \$80.95). Send Form 3579 to *Radio Control Car Action*, P.O. Box 427, Mount Morris, IL 61054.

ON THE COVER: Tamiya's Mazda 787B dominates this month's cover. Upper right—Losi's LX-T catches some air. Center inset—action at the Kyosho Gas Off-Road Champs. (All photos by John Huber.)

# EDITORIAL



## CAR ACTION'S COMMITMENT TO THE INDUSTRY

At *Car Action*, we've always done our best to serve our readers and promote R/C, and we've only just begun. No other publication offers so much. Just look at our massive "Track Directory" and our R/C Sweepstakes, not to mention our race sponsorship program. This year, *Car Action* has been involved in just about every major U.S. race—from the ROAR and NORRCA Nats to the Kyosho Gas Off-Road Series. In this issue, you'll find six pages of race entry forms, and *Car Action* is a major sponsor of each event. We've never forgotten that we owe our success to you; as long as you're there, we'll be here.

## SEPARATION OF THE CLASSES

While reading a back issue of a hobby-related magazine, I came across an article on a national R/C race in which the author wrote the following: "One thing that does stand out, though, is the advent of the factory teams participating in the races...ours is a participation—not a spectator—sport, and if we want it to grow and develop, I'd suggest two major racing groups—'factory' and 'independent.' We need both: without the factory teams, the science would stagnate; and without the independents, the business would stagnate."

I've heard a lot about this issue from both sides and most people agree: the pros don't mind the idea of running against one another; and the unsponsored drivers would like a real chance to win a national-level event.

So what should we do? Should we ask the sanctioning bodies to create separate classes? Perhaps there should be a national R/C point series, similar to the Winston Cup. Maybe we should let the pros compete for cash prizes; the racing at such events would definitely be hot. We must take some kind of action to address the needs and concerns of both groups. Oh, and by the way, the above quote is from the October 1971 issue of *Model Airplane News*!

# Radio Control CAR ACTION

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**SUBSCRIPTION PRICES:**  
U.S. & Possessions (including APO & FPO): 1 year (12 issues) \$29.95; 2 years (24 issues) \$54.95. Outside U.S.: 1 year \$39.95; 2 years \$74.95. Payment in U.S. funds.  
**Subscription Inquiries:** 1-800-877-5169

**RADIO CONTROL CAR ACTION** (ISSN 0886-1609) is published monthly by Air Age, Inc., 251 Danbury Rd., Wilton, CT 06897. U.S. Connecticut Editorial and Business Office, 251 Danbury Rd., Wilton, CT 06897. Phone: 203-834-2900. FAX: 203-762-9803. Y.P. Johnson, President; G.E. DeFrancesco, Vice President; L.V. DeFrancesco, Secretary; Yvonne M. DeFrancesco, Treasurer. Second Class Postage Permit paid at Wilton, Connecticut, and additional Mailing Offices. Copyright 1992 by Air Age, Inc. All rights reserved.

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L E T T E R S

## FYI, PART 1

One of your articles mentioned a 1/52-scale sports car called Pit Gear and I'd like to know more about it. Could you give me an address for Pit Gear so that I could send for more information? Thank you.

SHANE BUNNAG  
Los Angeles, CA

Great news, Shane! Pit Gear is now imported by Impulse Inc., 8426 Xerxes Ave. N., Brookland Park, MN 55444. Also, a full report on this remarkable little car was published in the July '92 issue of *Car Action*.

AS

## CHARGE!

I've been involved with R/C cars for almost five years, and I'm a "backyard warrior." I don't compete; the nearest track is a million miles away, and the hobby shops are even farther. My enjoyment comes from controlling a vehicle that I'm not in and making it do things that I wouldn't do in my own car. Even for the type of enthusiast I am, your magazine is the best on the market. My own "lot" consists of relatively inexpensive, low-tech cars: an FX-10, a Super-G, etc. The only high-tech cars I own are a Tamiya Avante 2001 (new) and an ancient-but-perfect Kyosho Javelin.

My wife screams at me when I search through your magazine for hours on end for the answer to one question: I've read all about these new, fancy electronic chargers but *how long do they take to charge batteries?* They sure tell me enough about amps, volts and peaks, but how many minutes does it take to charge an average pack? My old MRC465 Quick Charger is adequate for my use; I'm just curious about the better ones.

W.B. WALKER  
Keyser, WV

*The advantage of peak-charger isn't that it will charge your batteries faster, but that it will charge them fully and safely. With a timed charger, you never know when the battery is fully charged since the charger only charges for 15 minutes. Using a DVM*

*(digital voltmeter) to monitor the voltage is annoying because you must watch the reading constantly. You just press a button to start the peak-charger. When the battery has been fully charged, the charger senses the drop in voltage and stops. To answer your question, it depends whether you use 1200, 1400, or 1700mAh batteries and at what amperage you charge them. Usually, a 1400mAh battery that's charged at 5 amps takes 15 to 20 minutes; a 1700mAh that's charged at the recommended 3.5A rate takes about 20 to 25 minutes. We hope your wife won't scream at you now.*

AS

## FYI, PART 2

In the June '91 issue of *R/C Car Action*, you showed the Conley V8 engine that interested me greatly. Could you give me the address of the company so that I can find out more about it?

MICHAEL COSTELLO  
Granville, Sydney, Australia

*Michael, you can write to Conley Precision Engines at 825 Duane St., Glen Ellyn, IL 60137 or call (708) 858-3190.*

LA

## GET JUICED

I want to buy new batteries. I race an RC10 Team Car with a stock motor, and an Optima Mid with an Associated Mr. D modified motor and an A&L hop-up kit. People at many hobby shops have told me that the new Panasonic P-170s are the way to go. Which are better, Panasonics or Sanyos? Should I use six cells or seven? I also need a new speed controller for my Optima. Which is better, the Novak M5 or the Tekin 420? Great magazine; keep up the good work.

MICHAEL COLLIER  
Saugus, CA

*Owing to their high capacity and slower discharge rate, the new Panasonic P-170 cells are great for modified racing, but their lower average voltage makes them less desirable for stock racing. The Sanyo 1400mAh SCR seems to be the best cell for the stock*

**WRITE TO US!** We welcome your comments and suggestions. Letters should be addressed to "Letters," *Radio Control Car Action*, 251 Danbury Rd., Wilton, CT 06897. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

class because it offers a high average voltage and a low internal resistance. Most racers use six cells in modified racing—all use it in stock. Stick to 6-cell packs. In fact, Team Associated, long known for its use of seven cells, has recently moved toward six cells, reasoning that they're more "driveable" on slippery tracks. The choice between Novak and Tekin is up to you; both are great speed controllers.

AS

#### FYI, PART 3

I'm thinking of buying the Kyosho Outlaw Rampage, and I'd be very grateful if you could do a "Track Report" on it.

EDWARD HERNANDEZ  
Ventura, CA

Edward, you can check out Ed Byron's review of the Outlaw Rampage in the September '91 issue of *Car Action*. LA

#### IT'S A GAS!

Excellent "Nitro News" column in the April '92 issue, Jeff. Gas racing has come a long way since the days of the Cox .049 series in the '70s. What can you tell me about racing—especially NASCAR-style racing on oval tracks? What are the associations for gas racers? I'm considering a hobby/sport—R/C gas, R/C electrics, or slots—but I really want to compete. Your column was informative enough to convince me to subscribe to *Car Action* over two other magazines. Keep up the good writing and your sense of humor.

TED DAVIS  
Olympia, WA

Ted, 1/8-scale oval races are held in several areas of the country; for more information, you can contact Gary Otto at Racer's Choice/Arrow Tyres USA, 6N258 Acacia Ln., Medinah, IL 60157. There's a lot of competition in 1/8-scale racing, but the national-level racers are always friendly and helpful. ROAR, which was founded by gas racers, continues to support national and international competition. As for choosing from

(Continued on page 149)

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# TROUBLESHOOTING

by FRANK MASI



## FELONIOUS FUEL

I've owned an Outlaw Rampage since Christmas, and it ran perfectly until a couple of weeks ago. The engine is leaking fuel. When I drive my truck, the servos go crazy after about 20 feet. Can you help me?

Matt Beadling  
Cambridge, NY

*The fuel that leaked out of your engine probably entered and contaminated your receiver. Ideally, you should send the receiver back to its manufacturer for service. If you'd like to try to fix it yourself, separate the case halves, take out the printed-circuit (pc) board and let it dry. Most pc boards can be cleaned with common motor spray, but I don't advise this because the solvents in the spray might damage your connectors. If you completely clean the board (use isopropyl alcohol and a Q-Tip) and still have the problem, you'll have to send the receiver back to the manufacturer.*

*To avoid this problem, wrap your receiver in a waterproof, fuelproof material, and keep it away from the fuel tank and the engine.*

## DAVID VERSUS GOLIATH

My friend and I like to race every weekend. Unfortunately for me, he runs a Turbo Burns while I run an Ultima Outlaw. To run against a gas car, I have to really make my electric truck perform, so I installed an 11T motor in it. It now runs pretty fast, but it spins out when it accelerates. I've tried a variety of tires to get the best traction, but they haven't worked. Is there any way to fix this without spending a lot of money, or do I have to buy expensive trannys, gears, or slippers? And do they sell slipper clutches for the Ultima?

I also have a question about my car's steering. When I go at almost full speed through a turn, even with my A&L bellcrank, my car seems to keep going straight and takes forever to turn. I could let off the throttle more to take sharp turns, but my friend's gas car corners as if it's on rails. If I let off the throttle, he'll pass me. Is the problem my steering technique, my car, or what? Do I need stabilizers? My car doesn't flip in turns; it just doesn't turn!

Brandy Straatman  
Tamuning, Guam

*Brandy, you have to realize that you're running your truck against one that's much heavier, faster and more stable. I don't know of too many electric cars that can keep pace with gas cars (well, maybe Kent Clausen's Thunderdrome car!), so it's really not a fair race—apples and oranges, you know. There are ways, however, in which you can bolster your Outlaw Ultima's performance, e.g., add a hot modified motor (which you've already done).*

*Spinning out is an unfortunate side effect of running a fast motor; the additional power will make the rear tires break loose. To correct this problem inexpensively, increase front-wheel toe-in. (The front of each wheel will be pointing inward.) This will reduce your on-power steering slightly. Also try giving your rear wheels a little negative camber. (The tops of the wheels will be leaning inward.) If you have a little extra money, you could always buy new rear tires—ones that will give maximum traction on the surface on which you run your truck. As far as I know, the only way to mount a slipper assembly on the Ultima is by adding A&L's Lethal Weapon tranny, which can be bought with A&L's excellent Power Clutch slipper unit.*

*If you must slow down a little to take some turns, then do so. If you try to increase your truck's steering response, you might make your other problem—spinning out—worse.*

A black and white line drawing of two monster trucks racing. The truck on the left is white with black accents and has 'OUTLAW' and 'RCC' printed on its side. The truck on the right is white with black accents and has 'REEDY' and 'STEALTH' printed on its side. Both trucks are shown in a dynamic, racing pose.

ILLUSTRATIONS BY GERRY YARRISH

10 RADIO CONTROL CAR ACTION

## GEARS FOR THE ULTIMATE OUTLAW

I bought my Outlaw Ultima about a year ago. My friend gave me the 64-pitch racing gears out of an Ultima car, but they're pretty worn, and I want to buy new ones. I don't know whether I should get the same type of gear or go with a different setup. I run my Ultima on an off-road oval track, and it runs well, but not well enough. Can you recommend more suitable gears? I'm also having problems with my battery, which is being drained too fast. I use a Pocket Rocket 20T modified motor, a Novak 410 M5 speed controller and a Dynamite 1400 SCR racing pack.

*Kenneth Smith, Rocky Mount, NC*

*There are two ways to go. First, you could buy a new set of gears from Kyosho (part no. UM-01). They're inexpensive and should last a long time. Unfortunately, however, the teeth on the Kyosho gears are what's referred to as "metric pitch," so only special, metric pinion gears can be used with them. If you buy a new set of inexpensive, durable, metric-pitch Kyosho gears, you'll also have to buy metric pinion gears from Kyosho or Robinson Racing. Or try a set of standard after-market gears from Robinson Racing or Thorp. Mfg. These high-quality gear sets are made of machined nylon and are available in standard 48-pitch tooth sizes in both underdrive and overdrive configurations. For a truck, stick with 32- or 48-pitch gears. Stay away from 64-pitch, because the small teeth are much more fragile and prone to stripping when used in an off-road vehicle.*

*If run time is a problem, use a smaller pinion gear to lower your truck's overall gear ratio. Keep trying smaller pinion gears until you achieve the run time you want.*



## TOOTH DECAY

My RC10 Team Car's transmission recently started making a "gritty" sound. (I haven't run it in dirt.) I cleaned the transmission, but now when I try to run the car, it just sits there. The spur gear turns, but the car doesn't move.

*Marc Lee, Dallas, TX*

*The most obvious possible causes of your problems are:*

*• Dirt has entered your gearbox and has "lunched" on its internal gears, which should be replaced;*

*• Your slipper clutch is badly out of adjustment and should be tightened.*

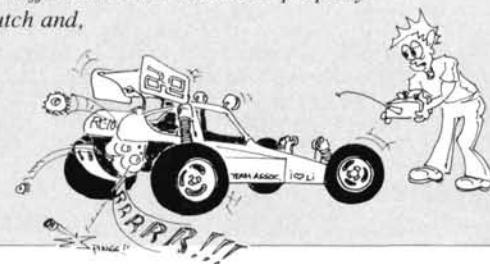
*If you clean them carefully, you might be able to salvage your internal gears, and the "gritty noise" might just be coming from the external pinion gear and spur gear, so check them carefully. If your slipper clutch is tight, but the car still doesn't perform correctly:*

*• The Rulon slipper disk might be so severely worn that it can no longer function properly. To check this, disassemble the slipper unit and remove the two hardened plates. Put the two plates together and see whether you can insert the slipper disk between them. If it fits without too much effort, it should be replaced.*

*• Check to see whether the differential unit has been properly*

*adjusted: lock the slipper clutch and,*

*while holding the tires, try to turn the spur gear. If it turns easily, tighten the diff until it doesn't. A properly set diff will never slip; that's the clutch's job.*



## THE CONNECTOR CAPER

I have a Kyosho Turbo Ultima II with a DuraTrax DTX-4 ESC and a Futaba radio system. I've never raced; I just run my car in a vacant lot. I have 6-cell and 7-cell battery packs. After one run, the battery-to-speed controller connector was too hot to touch. When it had cooled, I couldn't pull the connectors apart, but my father cautiously freed them with a screwdriver. The connectors seemed to have melted together.

How can I replace the two connectors? Why did this happen? What can be done to prevent it from happening again?

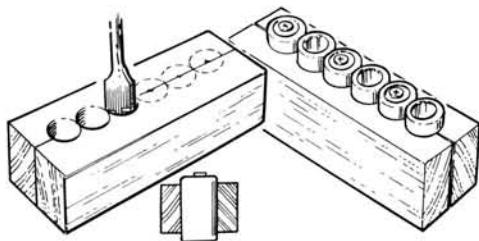
*Nathan Lawson  
Middletown, OH*

*Tamiya- and Kyosho-style connectors work well with most stock-class motors and up to six cells. When you run hotter motors and seven cells, however, it's time to upgrade your connectors. The loads imposed both by the increased voltage of seven cells and by the increased current draw of the hotter motor will eventually melt inefficient connectors. Many high-performance connectors are available, but those from Race Prep, Litespeed/Sermos, Deans and Trinity are among the best.*

*When you replace connectors, be sure to make a good solder joint. (With all the connectors mentioned, you have to solder on the motor and battery leads.) You'll need a good soldering iron. Be sure to tin the wire leads and the connector tabs with solder before you make the solder joint. To prevent shorting, it's also a good idea to cover all the exposed solder joints with shrink-wrap or vinyl tape.*



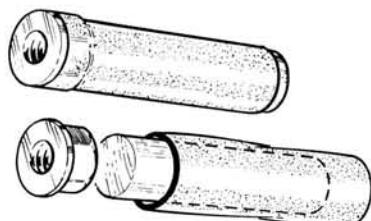
by JIM NEWMAN



### BATTERY-SOLDERING JIG

Use tape or rubber bands to hold two suitable wooden blocks together. With a wood-spade bit of the appropriate size, drill a series of holes along the joint line as shown. Insert the cells, and then use rubber bands or a vise to clamp the blocks together while you solder braids or straps onto the cells.

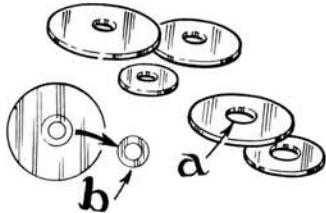
*Tang Pen Yeen, Johor Bahru, Malaysia*



### JRX-PRO EXTENDED NUTS

Here's a way to make it easy to reach the nylon nut that retains the gear cover. Use CA to glue the nut to a  $7/8$ -inch-long piece of  $1/4$ -inch-diameter dowel. Seal the joint tightly with a piece of shrink tubing. This setup will enable you to twist the nut off with your fingers after you've mounted the rear shock on the rear of the shock tower.

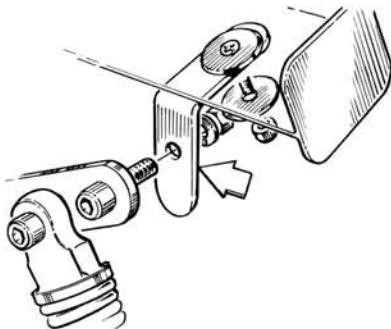
*LaDell Lawrence, Houston, TX*



### INEXPENSIVE BODY SPACERS

Your local welding-supply or hardware store probably carries these nylon helium-balloon washers. (A bag of 1,000 costs about \$10, so you might want to have some friends pitch in.) Use a  $1/4$ -inch-diameter paper punch to enlarge the washers'  $1/8$ -inch holes and make body spacers (a) and axle spacers (b). You'll save about 20 cents on each!

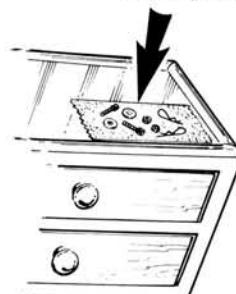
*Jim Baker, Union Gap, WA*



### READY-MADE WING MOUNTS

Stock speed-controller resistor brackets make excellent wing mounts for the RC10, and they'd probably work on other cars, too. Bend them so that they're angled slightly more than 90 degrees. Attach them to the shock towers with Allen screws, washers and nuts, and secure them to the wing with flat-head screws.

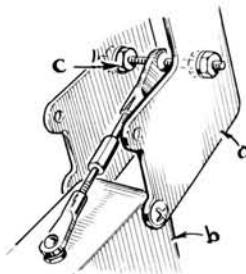
*Kevin Lynch, San Dimas, CA*



### STICKY-TOP PARTS TRAY

Put a piece of double-sided tape on top of your pit kit. When you work on your car in the open air, you can put small parts on the tape, and they won't be blown away.

*Rilindo Ilario, Curacao N.A., Willemstadt*

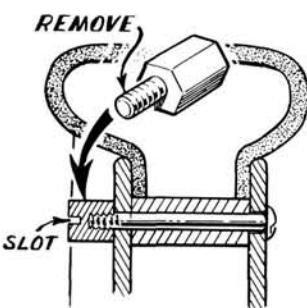


### ADJUSTABLE WING

This modification was made to a Tamiya on-road car. Use the wing supports' (a) bottom mounting holes to attach them to the top of the rear pod (b). Drill and tap a mounting hole for the tie rod in the top of the pod, and drill holes through the wing supports to accept a threaded rod (c). To adjust the downforce, you just turn the tie rod.

*Franco Lombardi, Pont Ste. Marie, France*

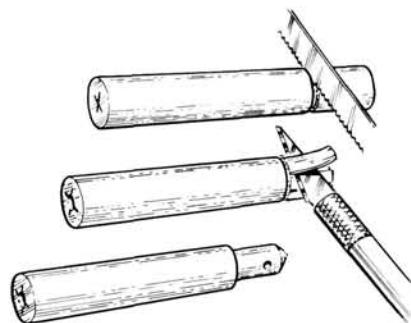
**PLEASE NOTE:** Be sure to print your name and full address clearly on every letter and sketch you send to Pit Tips. We have to throw away many good tips because we don't have the sender's name or address.



### JRX-T WHEEL REPAIR

Don't throw away your three-piece wheels after you've stripped the threads in them. Try this instead! You only need long 4-40 machine screws and special stand-off nuts (shown), which are available at Radio Shack. (They're long enough to fit into the rims' deep recesses.) Remove the threaded stud from each nut, and saw a screwdriver slot in that end. Tap the other end to accept the 4-40 thread. Drill holes in the rims, insert the screws and secure them with the modified nuts.

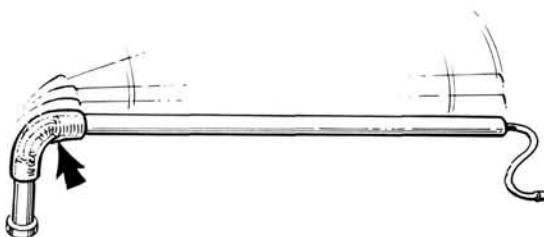
*Joe Kuczynski, Maryland Heights, MO*



### INEXPENSIVE BODY MOUNTS

Why buy plastic body-mount replacements when you can make them out of a  $5/16$ -inch-diameter birch dowel? Saw a shallow groove in the dowel as shown. Use an X-Acto knife to remove excess material from the tip. Sand it down to the proper size and shape, and drill a hole in it for the body pin. In the base, drill a hole that's small enough to allow the mounting screw to cut its own threads.

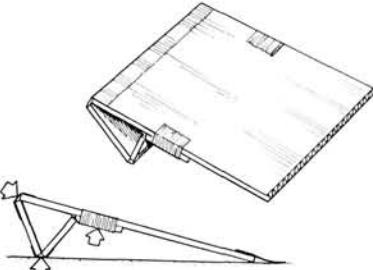
*Chad Migacz, Milwaukee, WI*



### FOLDING ANTENNA TUBE

Cut your plastic antenna tube as shown, and then cover the gap with a short piece of rubber fuel-line tubing. With this setup, if your antenna is bent during a roll over, it won't break.

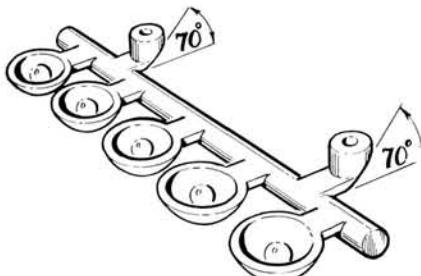
*Bruce Robertson, Kingston, Ontario, Canada*



### CARDBOARD JUMP RAMPS

You can make jump ramps using corrugated cardboard boxes and duct tape. You should be able to use them in your driveway without any problems; just tape them into place securely.

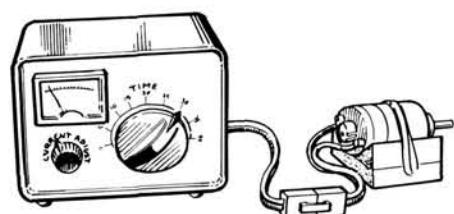
*Nick Grasso, Marion, IA*



### CLOD BUSTER FOLD-DOWN LIGHTS

File approximately  $1/16$  inch off the back of the light posts, creating a 70-degree angle. This will allow the lights to swing back so that they won't snap off. (This tip will probably work well on other vehicles, too.)

*Alastair Hepburn, Cromwell, New Zealand*



### BREAK-IN POWER SUPPLY

Why not use a 12V charger as a power source to break-in your motors? Connect the motor to the charger with a simple plug adapter. Set the current at zero before you start it up, and then increase it to about 2 amps for two 15-minute runs.

*John Lee, Vancouver, B.C., Canada*

# INSIDE SCOOP

by CHRIS CHIANELLI



*Well, here I am, hard at work again—this time in Japan. The Japanese are the friendliest hosts anywhere. There's one rule, though: you must sample all the food they put down in front of you. That includes raw snails and hot saki!*

## Tamiya's Red Carpet

During my recent jaunt to Japan, I visited Tamiya Inc. and the Shizuoka Hobby Show, where I learned that the Japanese are just as serious about their play as they are about their work. The

Factory) Team and the Woodydome, a famous Japanese racing facility (bottom right). Considering Tamiya's great design and manufacturing abilities, there was never any doubt that they could produce world-class race cars if they chose to, and from what I saw, it appears that they've chosen to!

It was an honor and a great learning experience to be a guest in the home of Sekitani-san, Tamiya's executive director. There, I was offered the finest hospitality and food by my host and his gracious wife. Japanese

dining isn't simply a meal—it's an event.

I attended the unveiling party for Tamiya's new products and immediately noticed the new Stadium Blitzer (above right) and other, as-yet-unnamed, products.

I'll tell you more about the Stadium Blitzer, my time at Tamiya Inc. and other aspects of my visit to Japan in future issues.



**Japanese hospitality at its best at the Sekitani residence, where I enjoyed a fine meal with the Tamiya bigwigs. Back row from left: Mr. Sekitani (executive director), Mrs. Sekitani, Mrs. Katayama (foreign division); front row from left: yours truly, H. M. Voss Jr. (adviser), Ed Frey (U.S. R&D), and Pepe Zelger and Nick Pfusterschmid from Italeri Inc.**

inner workings of Tamiya Inc. are as impressive as the outside of the spotless Tamiya main office building (top right). Tamiya Inc. is a self-contained, model-producing microcosm of the entire R/C industry. They do everything in-house, including the famous Tamiya artwork! Taki-san, the design division manager, gave me these shots of the TRF (Tamiya Racing



*Yours truly with company president Mr. S. Tamiya. Sorry, I gave my word that I wouldn't reveal the identity of these vehicles at this time. I was, however, granted permission to show you Tamiya's new entry-level race truck—the Stadium Blitzer (left).*



*Tamiya Race Factory (TRF) Team (right) is not only loaded with talent and design creativity, but they have excellent taste in field equipment; note the Car Action bags.*



## Jumpin' Jay Hangs Out



Jammin' Jay Halsey claims that bungee jumping is the best way to deal with pre-race jitters. "It's so relaxing," Jay says.

"Sometimes I doze off before I get to the bottom." Allegedly, Jumpin' Jay is having a jump tower installed in his bedroom to help him deal with those sleepless nights.



## THE QUEEN IS NOT AMUSED

Team Traxxas driver Rick Vehlow took top honors in the 2WD class of the Reedy Invitational Race in England. Racing his TRX-1 against the best drivers in the world, Vehlow clinched one 2nd-place and four 1st-place finishes to lead the point standings in the six-race series. Reports say that the crowd that constantly surrounded the Traxxas pit table clamored for more info about the American entry that dominated the field. The TRX-1 competed against cars from Associated, Losi, Kyosho and Schumacher; Vehlow's competition was the likes of Cliff Lett and Brian Kinwald.

## SUPER SOLAR KAT



Strange things happen when certain pollutants enter the air in large quantities.

Believe it or not, this is the most effective aerodynamic shape for the unusual atmospheric conditions found in Southern California. Will Super Solar Kat dominate California's ultimate Superspeedway event? Will Super Solar Kat take Thunderdrome? That depends on the wind direction on race day. If it does, will we have to rename it Thunder Kat? Don't we already have one of those?

Parma International, leader in R/C nostalgia, now offers this authentic-looking '50s-era interior, which will fit into most 1/10-scale sedan bodies. The kit for this .040-inch-thick polycarbonate interior includes a multi-piece assembly, instructions, servo tape, Velcro® and a boot for use in a convertible model.

## Open-Air R/C



Remember Agent 002, the Fearless Worm Hunter (Tomy TXR-002) robot from the May '92 "Scoop"? Well, like any good special agent, 002 has extended his "armament." It now includes a bullet-shooting right arm with a 10-shot magazine for those lightweight, high-speed night crawlers, and a jabbing left arm (two tips included) to deal with those hefty, fearless "sumo" worms.



## BUDGET F1

Here's Kyosho's all-new, very inexpensive 1/10-scale F1 car. It has that familiar pod-type rear suspension and a floating-kingpin front suspension, and it appears to be made mostly of Kelron. It will be available this fall and we hear that Indy bodies are in the works. Rumor has it that this F1 has a feature that will give it scale-like performance unlike that of any other car.



*This full-scale F1 car is co-sponsored by Kyosho. Note logo on front wing.*



## TRINITY'S SECRET WEAPON

Mr. Provetti, caught off-guard by the camera, holds the top-secret component of the new Trinity Smart Charger.

# ZIP PAK.

## Professional Power for Pennies...



It has been said the human hand is better than a computer at assembling battery packs. Don't believe it! Computers don't have bad days. They don't break up with their girlfriends and they don't have headaches. People do. That's why they don't always do the same job the same way twice. They're only human.

That's why Trinity uses an exclusive, computer-controlled, automated assembly system for their Zip Pak. Reliability and consistency are programmed in and never vary.

This automation is combined with the very finest materials. The cells are Sanyo KR1300SC (1300mAH) and there has never been a world champion that didn't run Sanyos. They've never lost! All tabs are pure nickel and as short as possible to minimize resistance. Each is double welded, and all wires are pure copper with silicon insulation. The entire assembly is pressed into a precision fitted tube which protects it from the rough and tumble world of racing.

As the bare, assembled pack nears completion, it is connected to an instrumented quality control panel which measures all facets of the pack's performance. Only then is the Zip Pak label applied.

The result is the lowest cost, highest quality sport pack available.

**Buy several as back-up spares. Never be short of power.**



Trinity Products Inc.

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DO YOU KNOW THIS MAN?

Here's an interesting product from Mitsuwa Models that I saw at the Shizuoka Show in Japan. Each of these 1/32-scale monster trucks, which aren't available yet in America, comes ready-to-run with everything you see in the photo. They have independent suspensions and are



## TINY MONSTERS

reported to run for 20 minutes on one 30-minute charge. Also available is a 1/24-scale Mitsubishi Galant VR-4 (not shown). For more information, contact Kashiwazaki Co. Ltd., 4-16 Komagata 1-chome, Taito-Ku, Tokyo, Japan; fax 011-81-3-3843-1635.



# Winning by Design

## • The TRINITY Championship Series™ •

Trinity's Championship series of motors is well named. The 1991 record books clearly show the Championship Series has been the hands down winner in all types of modified racing.

1991 NORRCA 4wd Dirt Oval.....	National Champion
1991 ROAR 1/10th On-Road.....	National Champion
1991 ROAR 2wd Dirt Oval.....	National Champion
1991 ROAR 2wd Off-Road.....	National Champion
1991 ROAR Monster Truck.....	National Champion
1991 Cleveland Indoor.....	National Champion

Championship motors are fast and are the first specifically designed to use Sanyo's new 1700SCRC and Panasonic's P170 SCR batteries.

RC1700	Nuclear Meltdown™	(9T, Dbl)	\$80
RC1777	Kevin, Kevin™	(10T, Trpl)	\$80
RC1778	Helter Skelter™	(11T, Quad)	\$80
RC1779	Speed Metal™	(12T, Trpl)	\$80
RC1780	Flash Point™	(13T, Sngl)	\$80
RC1781	Buzz Saw™	(14T, Dbl)	\$80
RC1782	Armageddon™	(15T, Quad)	\$80
RC1783	The Classic™	(16T, Quint)	\$80
RC1708	Joel Magic Johnson ®	(17T, Trpl)	\$80



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# READERS' RIDES

"Readers' Rides" is our way of recognizing the unique, innovative—and sometimes bizarre!—vehicles that our readers have created. Send us a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, R/C Car Action, 251 Danbury Rd., Wilton, CT 06897. If the Ayatollah chooses your photo, you'll receive a one-year subscription to Car Action, or an extension of your existing subscription. You'll also be eligible for the third annual "Reader's Ride of the Year Contest" in the fall of 1992. Write your address and phone number on your letter and on the back of each photo you send, in case we need to contact you.



## HE HAS THE DIRT

Scott Ward of Milford, DE, says that his "dirt-modified" creation started as an RC10 Team Car. He dyed the white components black and red to create a smooth-looking chassis, and

then he flattened the front nose plate so that he could mount the front shocks vertically. He made the nerf bars of brake tubing, and he fashioned the body of clear Lexan. The graphics were laid down by 2 Trick Lettering, and the car is maintained by Team RMS.

## CANADIAN CRUSHER

Marc Thériault of Ottawa, Ontario, Canada, is justifiably proud of his Kyosho Nitro Crusher. Powered by an O.S.

Max .21 RX-B with a DuraTrax pipe, and controlled by a Futaba PCM 1024, it has a Turbo Burns quick-fill tank and a Du-Bro 340 in-line fuel filter. Other extras include Kyosho headlights and fog lights, a full set of ball bearings and front and rear stabilizer bars. Pactra trim tape and Dahm's window tint add the finishing touches.



## BAD-BOY BULLHEAD

Ryan Pape of Branford, CT, claims he built his "car-crushing, track ripping" Tamiya Bullhead in seven hours. Since then, he has modified it with PTI's Clod packs, which are hooked in series to pump out 7.2 volts and provide plenty of power. With the help of a homemade lift kit, he installed an oil-filled Kyosho black shock at each wheel. He topped the four coats of yellow acrylic paint with three coats of clear paint to protect the decals and to give it that "just washed" glossy look.

### RETURN TO OFF-ROAD

Until a year ago, when he lost most of his sight, Jay McCormick of Prince George, British Columbia, Canada, was an avid participant in full-size off-roading. He says that R/C trucks have put him back in the "driver's seat." His first model is this Kyosho Outlaw Rampage, which he finished with the help of a magnifying glass. Except for the Pro 65 and 70 Red tires, the truck is stock. His brother Jody helped him with the pearl-white paint job.



### CALIFORNIA CREATURE

This RC10T is the handiwork of Adrian Chavez of Stockton, CA. Powered by a Reedy Mr. F and Trinity Pushed SCRs, it's controlled by an Airtronics XL2P with a 94737 servo and a Novak 410-M5 ESC. A few of Adrian's modifications include RPM arms, gear cover and spring collars and Tecnacraft titanium turnbuckles and dogbones.

### TWO TERROR

This Team Losi Junior Two belongs to Richard Hamel of Drumheller, Alberta, Canada. Powered by a Trinity stock motor, the Two has Sees aluminum wheels, an A&L slipper clutch, Tecnacraft turnbuckles and Losi Hardbody rear shocks. It's controlled by a Futaba Magnum Junior and a Robart HQ-505 ESC. We liked Richard's sleek paint job—especially the slime-green trim.



### THE FLYING...DIAPER?!

Now we've heard it all. Glen Rosenberry, of Ft. Loudon, PA, has found a creative way to recycle, well...Pampers. It seems that his two-year-old daughter goes through a lot of them, so he made decals for his Bolink Sport's Thunderbird body from the packaging used for Pampers and other baby products. Gene says his Winston Class car will "go through all the Pampers' phases, plus

absorb the asphalt—as well as the turns—and come out clean and dry in the end." Not only does Glen rate a free subscription, but he also wins the "Most Groans from the Editors" award.

# On the rebound

by JOHN HOWELL

**D**O YOU think that shock tuning is complicated? Are you confused by terms such as "compression damping" or "spring rate"? Well, you're not alone. If you consider all the variables that affect how your car handles and the fact that shock tuning doesn't have one perfect setup, it's no wonder that you're confused.

When I first got started in R/C, like many, I knew nothing about suspension. It took a lot of trial and error before I mastered the basics of proper shock tuning. To help you, I've put together this guide with the help of top racers Gil Losi Jr., Joel Johnson, Cliff Lett and Jay Halsey. If you want to "shock" your friends with new information, read on.

## THE SHOCKING TRUTH

A shock has six components: the shock body, the spring, the shock shaft, an internal piston, a cartridge/O-rings and oil. In the early '80s, Tamiya was the first to produce a basic

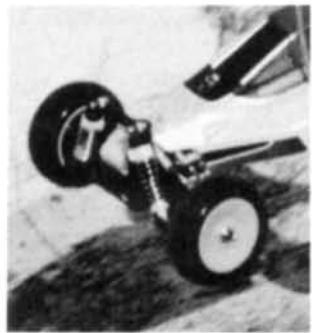
coil-spring, oil-filled R/C shock. In 1984, Kyosho developed a more advanced shock, but it couldn't be rebuilt. Associated followed soon after with a similar shock that could be rebuilt.

The way a shock works is simple. Inside the shock is a piston that's

attached to the top of the shock shaft. The piston (a disk) has two, sometimes three, holes in it through which the oil can flow. When the shock is compressed, the piston moves through the oil from the bottom of the shock body toward the top. Oil is pushed through the piston valving (holes in

the piston) in the opposite direction that the piston is moving. When the shock is released, the tension from the compressed spring returns the shock to an extended position.

There are three types of shock oil—synthetic, silicone and petroleum—and they're available in different viscosities. Viscosity is the degree to which a fluid resists flow under an applied force. A 20W or a 30W oil flows through a shock piston more easily than a 40W or a 50W oil. Most racers prefer the more expensive, higher quality

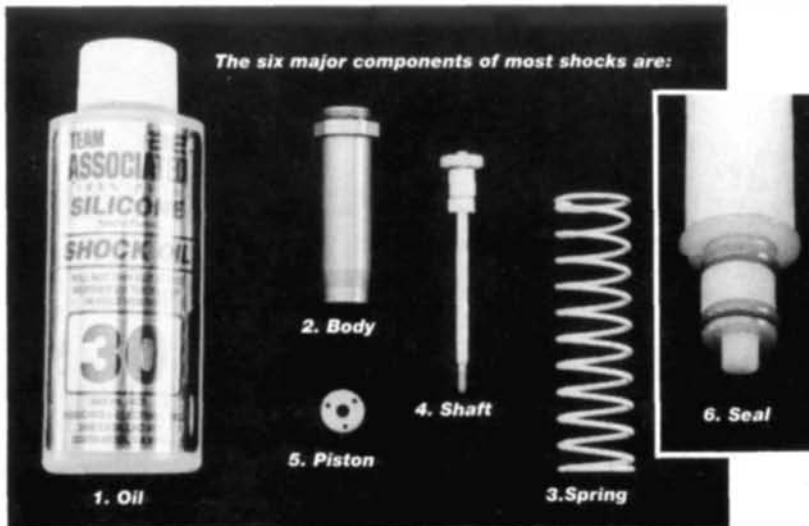


PHOTOS BY JOHN HUBER



# SHOCK TECH





# SHOCK TECH

synthetic and silicone oils to the petroleum oil.

## TUNING TIME

If your car or truck is bobbing around the track or bottoming-out

off jumps, you can compensate by adding a higher-viscosity oil. If the front end noses down off a jump, you can add stiffer springs. Rear shocks that rebound too quickly because of a lack of rear damping can also cause a vehicle to be nose-heavy.

(Continued on page 58)

## It's not what you think

### Shock Babbler

*Shock terminology confuses many beginners. Here's a list of the most commonly used terms.*

**Compression damping:** the rate at which the suspension contracts when pressure is exerted on it.

**Compression:** the shock shaft pushing into the shock body.

**Damping:** the amount of energy absorbed by a shock.

**Free or static sag:** the amount the spring compresses under the weight of the machine alone.

**Friction:** resistance of one object against another.

**Pack:** a condition caused by excessively slow rebound damping, i.e., the shock is rebounding as it hits the next obstacle.

**Pre-load:** the amount of tension placed on the spring.

**Progressive spring:** depending on how its wound, this type of spring becomes progressively softer or stiffer.

**Rebound:** the shock has been compressed and is returning to its original length.

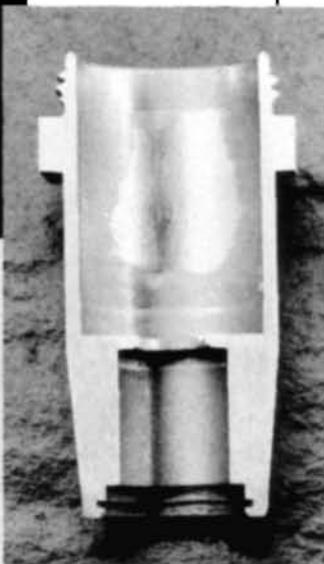
**Ride height:** how high the car/truck's chassis sits off the ground.

**Spring rate:** the spring's stiffness, or rate of compression.

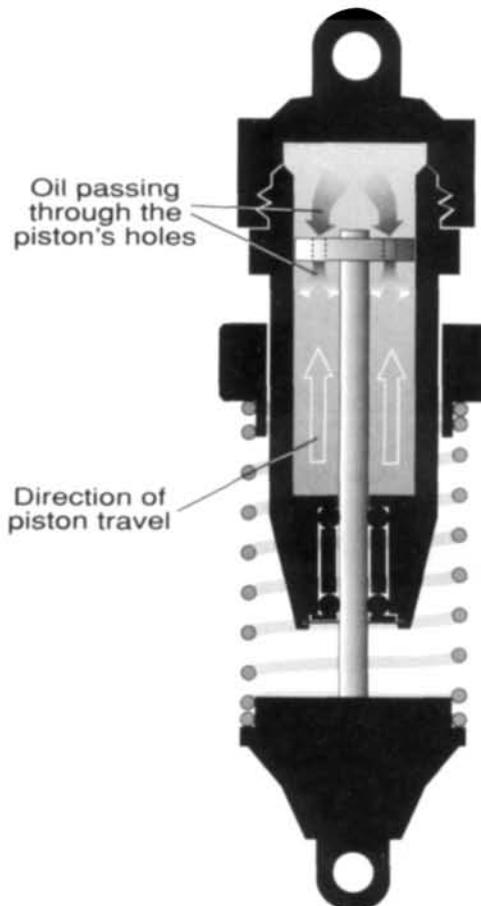
**Static damping:** the slow, initial movement of the shock shaft into the shock body.

**Stiction:** dynamic movement; the initial energy it takes to start moving an object.

**Straight spring:** carries the same spring rate throughout its length.



*This cutaway view of a standard anodized shock body shows the wear that can occur over a short time. Hard-anodized shock bodies last up to 10 times longer than standard shock bodies.*



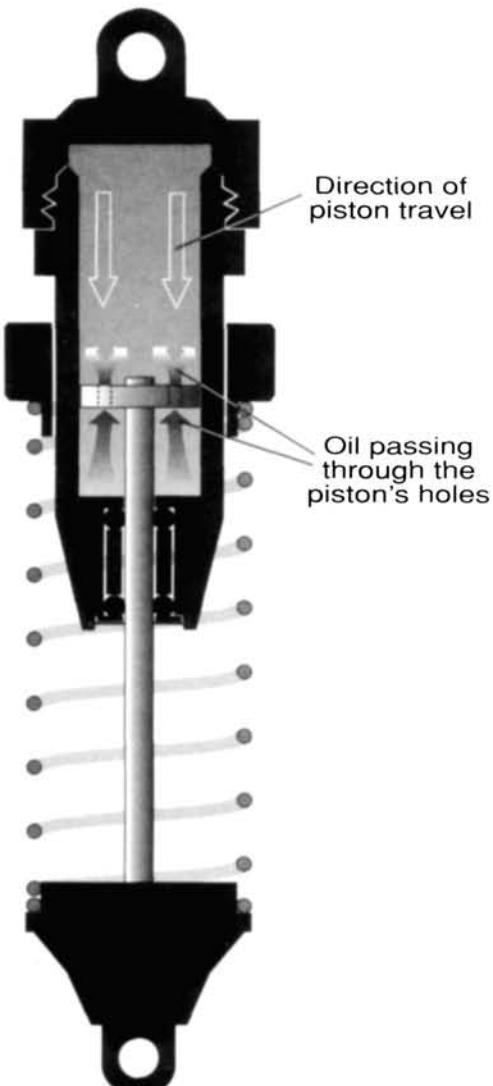
## Shock under compression

### Hard Anodized

The terms "hard anodized" and "standard anodized" refer to a process in which metal is electrolytically coated with a durable, protective finish. Hard anodization creates a stronger, thicker finish by anodizing the

aluminum for a longer time.

Most aluminum shocks are protected with an anodized coating, because untreated aluminum oxidizes and contaminates the oil. A hard-anodized shock lasts 10



**Shock extended**

## Standard Anodized

times longer than a standard anodized shock. That doesn't necessarily mean that standard-anodized shocks are bad; they just wear out faster. You'll have to decide which is best for you.



*All that's accomplished by moving the shock collars is a change in ride height; spring rate is unaffected.*

# SHOCK REBUILDING

**Joel Johnson:** "I rebuild my shocks whenever I start to hear air trapped in the shock. If dirt is packed up underneath the shock shaft, I'll rebuild it then, too. When I rebuild my shocks and I'm changing oil viscosity, I spray some motor spray inside the shock body to clean it out so there won't be any oil mixed."

**Cliff Lett:** "If I'm at the racetrack, and it's a dusty, abrasive track, I'll rebuild my shocks after every race, or every other race. I also check the shock shaft for scratches, and if there are some, I'll replace that, too. Your level of competition should determine how often you rebuild your shocks. If you're serious, rebuild them after every race."

**Gil Losi Jr.:** "I rebuild my

shocks if they're leaking or the action is sticky-feeling. I replace the entire cartridge on the shock if it's a non-compensating shock. When I'm rebuilding the shock, I check the shaft for damage, and if there are light scratches, I'll polish the shaft with some crocus cloth, which is equivalent to 1400- to 1500-grit sandpaper."

**Jay Halsey:** "I rebuild my shocks after a full day of running, or after two nights of racing. Don't forget to put some oil on the shaft before putting it in, or you might tear your O-rings. Also, sometimes the O-rings in the cartridge aren't centered, so I put the shaft through and wiggle it around to help center things and make sure the shaft moves freely through the cartridge."

CLIFF LETT'S

# PIRAT



## Inside the Kyosho Challenge Winner

by JOHN HUBER



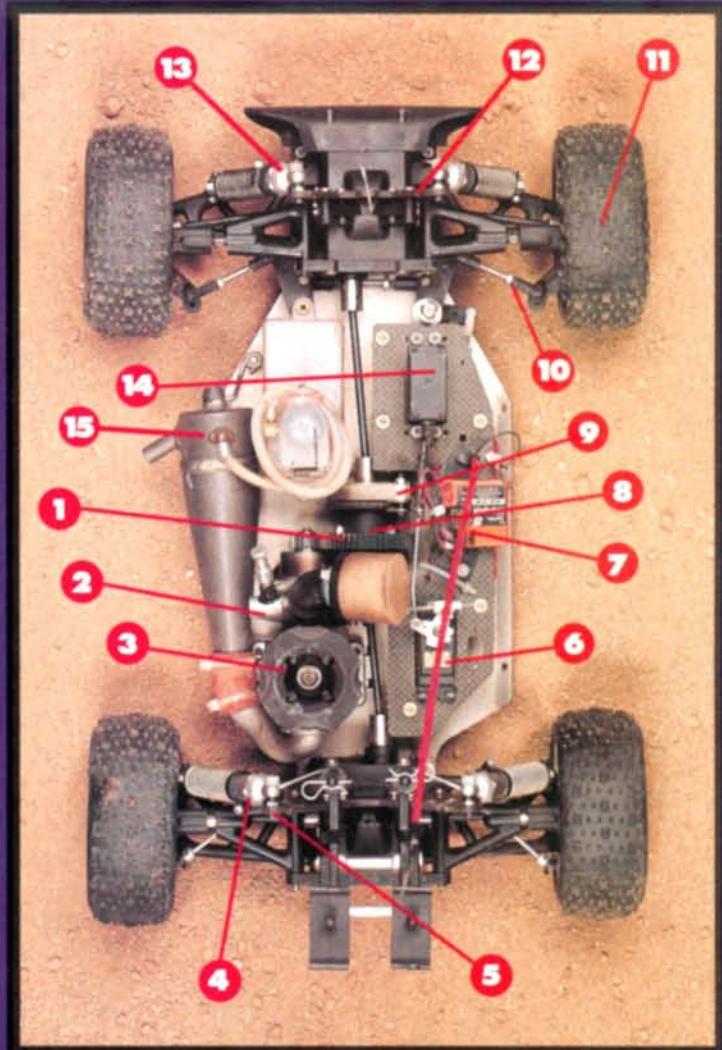
PHOTOS BY YAMIL SUBI

# PIRATE M1

**R**ACING WAS FIERCE at the 1991 Kyosho Off-Road World Challenge. Drivers from all over the country headed to Champaign, IL, for what has become the 1/8-scale off-road event in the U.S. Cliff Lett won the race with his OFNA\* Pirate M1, and he was kind enough to let us take a closer look at his killer machine.

## POWER

Cliff's Pirate is powered by a Paris\* Rex five-port Turbo Buggy engine that's equipped with an OPS\* 8mm carburetor. Paris-modified engines are hand-worked to produce the most power possible—often more than 2hp!



1. Machined-nylon drive gear with 16-tooth clutch bell
2. OPS 8mm carburetor
3. Paris Rex five-port Turbo Buggy engine
4. Pirate hard-anodized bodies with Associated shafts and seals
5. Custom fiberglass shock tower
6. Airtronics no. 94737 servo for throttle/brake
7. Novak NER-3FM receiver
8. OFNA one-way diff
9. Pirate aluminum diff mount with ball-bearing brake lever
10. RCPS titanium turnbuckles with RPM red ends
11. Pirate X-pattern medium-compound tires
12. Custom fiberglass shock tower
13. Pirate hard-anodized bodies with Associated shafts and seals
14. Airtronics no. 94151 steering servo
15. Paris AL650 tuned pipe

# OFNA PIRATE MT

Type	Off-road buggy
Scale	1/8
<b>DIMENSIONS:</b>	
Overall length	17.5 inches
Width	12.0 inches
Wheelbase	12.5 inches
Front track	9.75 inches
Rear track	9.75 inches
<b>WEIGHT:</b>	
Gross (without fuel)	7 pounds, 1.08 ounces
<b>BODY:</b>	
Type	Stock buggy
Material	Polycarbonate
<b>CHASSIS:</b>	
Type	Pan
Material	Hard-anodized aluminum
<b>WHEELS:</b>	
F/R Type	One-piece plastic
Dimensions (DxW)	3.18x1.63
<b>TIRES:</b>	
Front	X-Pattern medium-compound
Rear	X-Pattern medium-compound
<b>POWER:</b>	
Engine	Paris Rex five-port Turbo Buggy
Carburetor	OPS 8mm
Fuel	Power Curve 20-percent-nitro
Pipe	Paris AL650
<b>RADIO:</b>	
Transmitter	Airtronics Caliber
Receiver	Novak NER-3FM
Throttle servo	Airtronics no. 94737
Steering servo	Airtronics no. 94151
Receiver pack	Four 600mAh NiCds
<b>SUSPENSION SETUP:</b>	
<b>FRONT</b>	
Pirate hard-anodized shock bodies with Associated 1.02-inch shafts and seals. Custom Teflon pistons with two .052-inch holes. Associated 35WT silicone oil. Custom, 125-inch fiberglass shock tower. Kit springs.	
<b>REAR</b>	
Pirate hard-anodized bodies with Associated 1.32-inch shafts and seals. Custom Teflon pistons with two .052-inch holes. Associated 35WT silicone oil. Custom, 125-inch fiberglass shock tower. Kyosho* silver springs.	
<b>OPTIONAL PARTS:</b>	
Pirate one-way center diff, aluminum diff mounts, hardened-steel diff parts, RCPS titanium turnbuckles, RPM rod ends.	

## PIRATE MT

Cliff also used a Paris high-energy quiet pipe (AL650) that's hard-anodized to resist scratches and to increase the surface tension of the pipe. Cliff threaded a Paris pressure fitting into the pipe and used JB Weld\* to hold it in place.

Look closely at the needle-valve stem on the carb; it won't leak or come loose, because Cliff applied a layer of JB Weld around the fuel fitting and the stem's base to seal it. He uses 20-percent-nitro fuel by Power Curve\*.

### DRIVING FORCE

When you put this kind of power through a Pirate, there are several mods that you can make to help it cope with the force. The nylon mounts that support the center differential and the brake system flex under this load, so Cliff replaced them with sturdy aluminum ones. Not only do they keep the gear mesh of the clutch bell and the spur gear within tight tolerances, but they also provide ball-bearing supports for the brake lever. The aluminum mounts are machined out so that they're light, yet strong.

### ONLY ONE WAY TO GO

So that the Pirate would handle like most of today's electric 4WD cars, Cliff replaced the center diff



Cliff made this custom fiberglass rear shock tower. With the Associated shock parts, it added 1/4 inch more travel in the rear.



The Pirate's machined nylon spur gear is extremely strong yet much lighter and quieter than a steel gear. Notice the JB Weld on the pipe's pressure fitting and on the needle on the carb.



Cliff's custom front shock tower increased the front suspension by 1/2 inch. There's no word yet on whether OFNA will market them.

with a one-way unit that retains rear power when the car accelerates from a dead stop. Before, as the car's weight shifted to the rear wheels, the center diff transferred too much power to the front wheels.

With the one-way unit, power from the motor is delivered directly to the rear

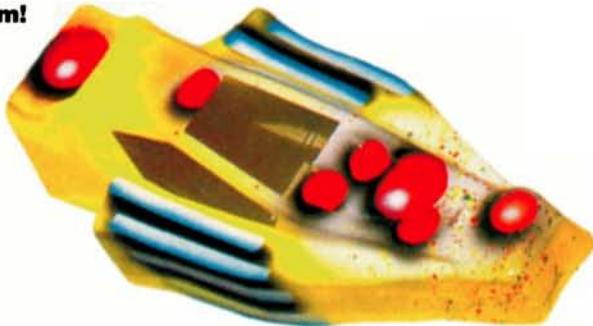
(Continued on page 86)



by MIKE OGLE

## Tips For The "Artistically Challenged"

**S**o you've seen those wild California surf-graphics paint jobs with the "floating" geometric shapes and you want to paint this scheme on your next R/C car body? Well, you're in luck. If you know the tricks, these paint schemes are so easy that you'll probably get great-looking results the very first time—even if you have less artistic talent than a lobotomized opossum!



### 1 GETTING STARTED

First, mask the car's windows with 2-inch-wide masking tape. On most off-road car bodies, one piece of tape will completely cover each window. If you hold the body up to a strong light, you can see the molded-in window lines through the tape. Cut around these lines using a hobby knife with a no. 11 blade (the sharper the better). Don't worry about cutting through the Lexan body. It would take a lot of force to do this. If you really hate to "do windows," you can take the easy way out and buy a body that comes with window masks, such as the Mirage from R/C Performance Specialties\*. It's a real time saver!



### 2 ROAD TRIP!

It's time for a field trip to your local stationery or office supply store. There, you'll find a selection of die-cut, adhesive-backed labels that you'll use as masks for the geometric shapes in your paint scheme. Avery is one popular maker of these handy little items, which come in a variety of shapes and sizes. They don't usually cost more than \$5 for about 100 stickers. I chose some round dots to make "bubbles," some small squares for a "breakaway" scheme, and some long, rectangular stickers for the sides of the car.

Apply these stickers to the inside of the car's body in any way. You don't need rules; be creative and express yourself! You can even overlap the shapes to give the illusion of even more depth.

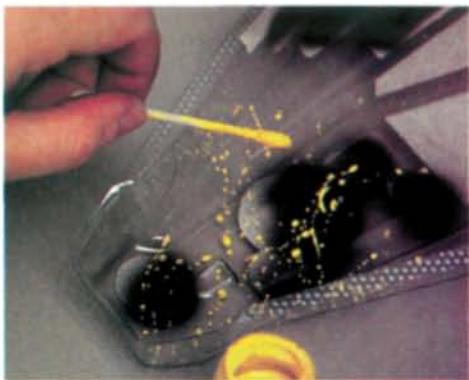


### 3 THE SHADOW KNOWS

When you've finished placing the shape masks, "shadow" them with your airbrush and some thinned black paint. Adjust your airbrush to a fine spray pattern (about  $\frac{1}{4}$  inch wide) and spray around  $\frac{2}{3}$  of each shape to make it stand out from the background. Don't spray the shadow all the way around; that will look unnatural, and it won't give the appearance of depth that you want. (Refer to the photos for clarification.) If you spray a small shadow that hugs the shape tightly, it will appear to "float" right above the surface of the body. A larger, wider shadow gives the illusion that the shape is higher above the surface. One more point: if you spray all the shadows on the same sides of your shapes, you'll create a more natural-looking effect, i.e., that a single light source has cast all the shadows.

### 4 SPLAT!

Here's another (optional) super-easy paint trick: use a regular Q-Tip to splatter the inside of the body with paint. Just dip it into the bottle of paint and fling it toward the body with a sharp snap of your wrist. Use bright colors, and let it fly! Just be sure that the splatters don't run together. You can use an old toothbrush for a finer splatter pattern. (Don't even think about using your sister's toothbrush unless the idea of military school appeals to you.)



### 5 THE BASIC BODY COLOR

Now, spray on your car's basic body color with either an airbrush (set to a wide pattern) or a spray can. Apply the paint in several light coats to ensure that it doesn't bleed under any of your masking. Let the paint dry between each coat. Remove the masking stickers (leave the window masking on for now) by working the tip of your hobby knife under an edge of each and prying it until you can grasp it with your fingers.



### 6 THE FINAL STEP

Finally, paint the floating shapes. You can spray them with solid colors, or you can give them 3-D effects by fogging the shape's edges with a slightly darker color first, then filling in the rest of the shape with a lighter color. (Two combinations that look especially good are a red edging filled with a bright orange, and a blue fogged edge filled with a light blue or white.) If you have a lot of experience with the airbrush, try spraying in a small dot of pure white onto the shapes first for a "highlight" on the shape. This really "pops" the shapes out of the background!

That's it! Remove the masking from the windows and add any details you might want. You should be pleasantly surprised by the results. Don't forget: what looks tricky to paint is just that—tricks! Don't be afraid to experiment with these new techniques. You just might come up with something that will have other racers scratching their heads and asking, "How'd you do that?" But you won't have to tell 'em!

\*Here's the address of the company that's mentioned in this article:  
R/C Performance Specialties, 18312 Gifford St., Fountain Valley, CA 92708.

PHOTOS BY MIKE OGLE



**T**HERE'S VERY SO OFTEN, I have to drop all my racing gear and go have a different kind of R/C fun. Usually, going back to my good old local parking lot does the trick. There, I can simply blast around, without the concern of a course to follow, tires to select, or run time. That's what I set out to do with the Tamiya\* Mazda 787B, but something happened. Instead of enjoying the serenity of my solo cruise through the lot, I was eagerly looking for someone's butt to kick. This car isn't a super-duper graphite racing machine, but it's smooth and super-cool looking, and it would be a blast to run it against a field of its own.

#### CLASSY CHASSIS

The Mazda 787B is based on Tamiya's newest ball-diff on-road chassis (also used on the Mercedes C11 and the Ferrari F-40). The heart of the chassis is a molded plastic tub that houses the battery and electronics and protects them from the elements. It might seem a little odd to use a tub for an on-road car, but it's very stiff when it's assembled.

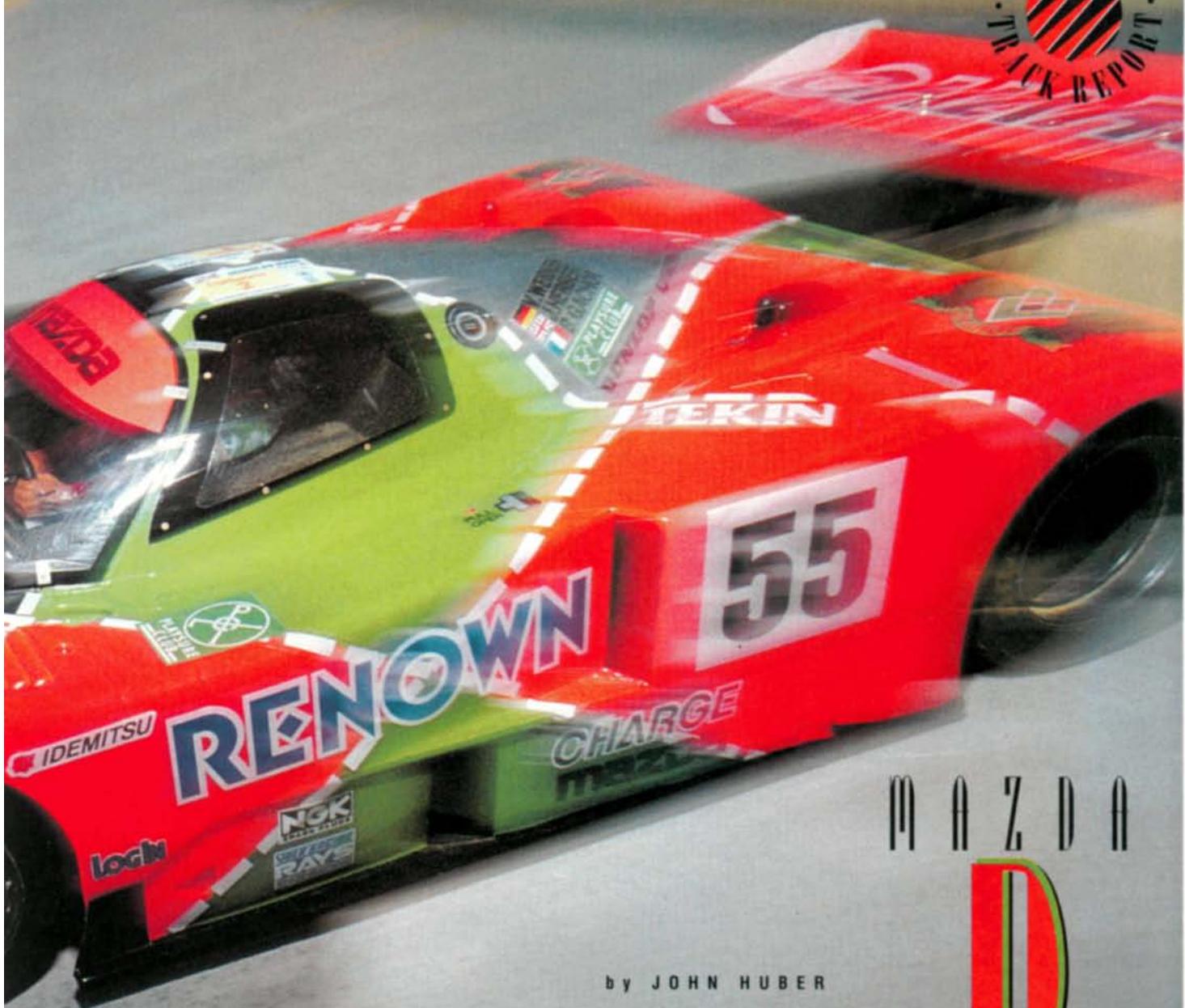
The front end is attached to the tub with an upper plastic brace and a lower fiberglass plate that doubles as a servo mount. You can add or remove spacers to alter the front ride height. The wheelbase is adjustable to allow the use of different bodies; for this body, however, there's only one correct setting.

Wide, "Indy-style" front arms



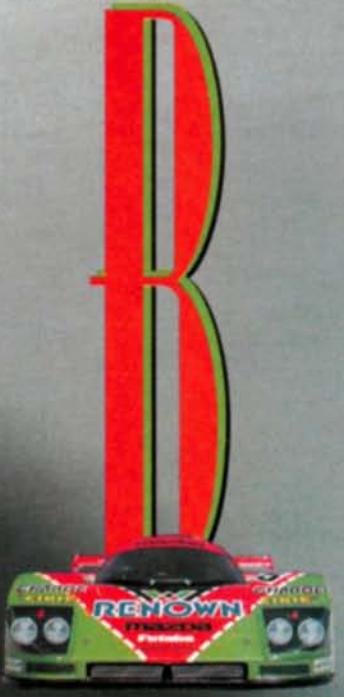
support the floating front axles. The stock springs are rather stiff, but if you want to replace them, lighter springs are available.

CAR ACTION  
TRACK REPORT

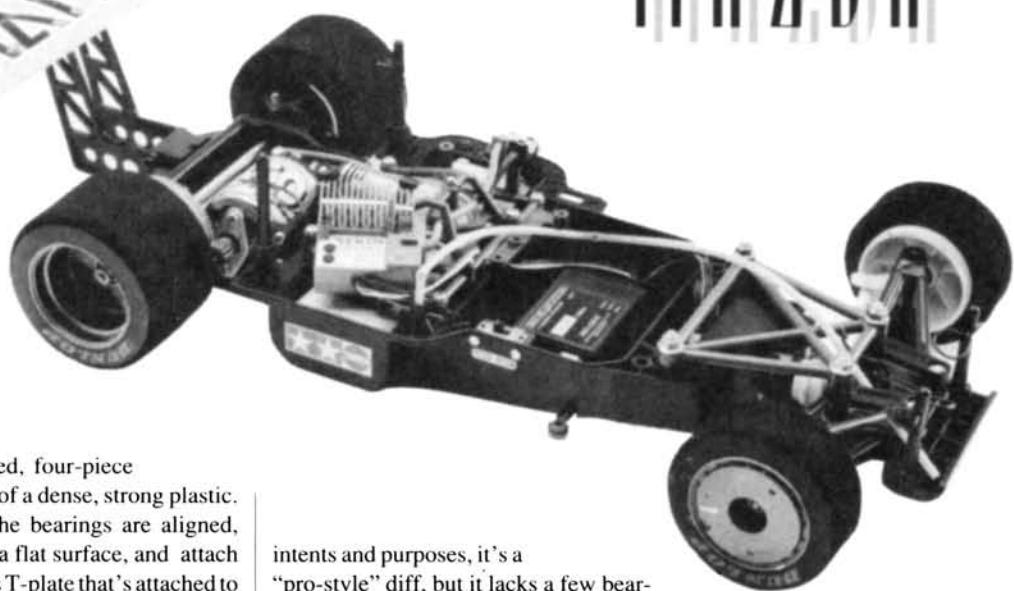


24 HOUR POWER!

M A Z D A



CHARGE



The well-designed, four-piece rear pod is made of a dense, strong plastic. To ensure that the bearings are aligned, build the pod on a flat surface, and attach it to the fiberglass T-plate that's attached to the rear of the tub. To alter the ride height in the rear, insert spacers between the pod and the T-plate. The front of the T-plate is rigidly mounted to the chassis, but the rear mount is adjustable and has an O-ring spacer. Tightening the rear mounting screw increases the stiffness of the plate, and this gives more steering. I adjusted the rear

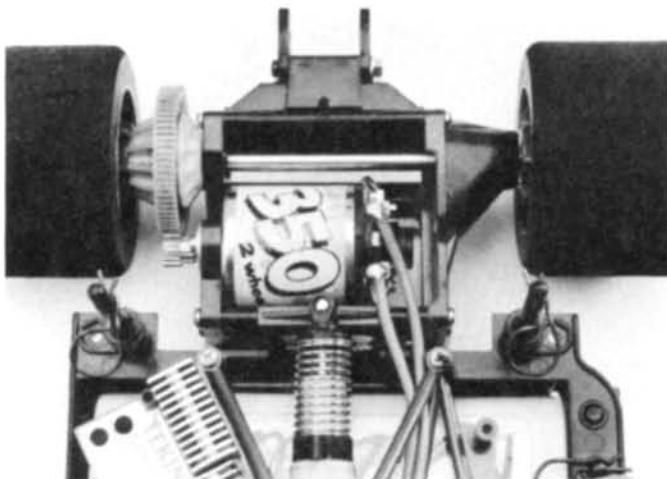
intents and purposes, it's a "pro-style" diff, but it lacks a few bearings. To keep costs down, Tamiya used bushings rather than bearings in the spur gear and the right hub. Despite this, the diff's action is extremely smooth.

I wanted all the diff balls to receive even pressure from the rings, so I took an extra step and smoothed one side of the diff rings on a sharpening stone. To do this, put a drop of oil on

the stone, put the ring on one of the hubs, and rub it against the stone in a figure-8. I saw irregularities in the ring almost immediately. When the surface was uniform, I stopped polishing.

#### THE WILD AND THE MILD

I went in both directions with the radio gear. I used a Tekin\* 408S Sport ESC for the car, and I attached the switch with a Holeshot\*



**A Speedworks 350 motor provides a slight increase in top speed and still allows good run times. Tamiya's ball diff is very smooth; if it had three more bearings, it would be a "pro-style" diff.**

mount until I obtained a balance between oversteer and understeer.

#### DIFFERENT STROKES

The differential on this car is one of the best that I've ever seen. The hex diff rings lock to the hubs without pins or glue. For all

ESC switch clamp. The 787B comes with a Mabuchi motor, but I used a Speedworks\* 350 18-turn double motor that has good punch without hair-raising top speed. For power, I chose a Trinity\* Maxzilla 1400 SCR pack. This model calls for a stick pack, so the Maxzilla was the perfect choice.

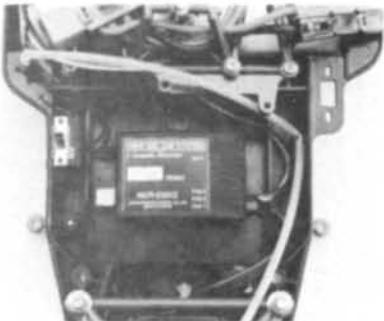
Now for the wild: I happened to buy the new JR\* R-756 radio just before I finished the car, so I installed the PCM receiver and a 2035 servo, and I adjusted the

transmitter to match them. Boy, what a breeze! I simply set all the trims and stored "Mazda" into the transmitter. This high-zoot radio system is overkill for a sport car like this one, but because it has memory for six models, I can still use it with five other cars.

#### THE TEST

As I said before, this car is a blast to drive. It may not have the best performance, but for smoothness and realism, it can't be beat. Its ground clearance was adequate for a smooth parking lot, and as long as I kept away from sandy areas, the spur stayed clean. I dialed out a bit of the brakes, because the car locked 'em up too easily. Traction was pretty good, even though there was a little pollen on the ground (springtime, ya know). Full-speed blasts lit up the tires and sent out a greenish cloud.

At speed, I noticed that the car was pushing a little, so I simply tightened the rear T-plate mounting screw. Now, I had almost enough steering. A little more tightening, and it was dialed. I thought about playing with the rear shock oil, but it

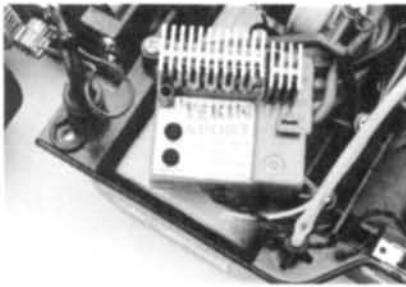
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8

*I used JR's new R-756 radio for the test drive. It's a little wild for a car of this caliber, but with its six-model memory, switching it to another car is just a matter of pushing a button.*

worked flawlessly with the supplied oil. I left the parking lot with a car that still looked great, and I was eager to return with a friend and race.

In Japan, these cars are very popular, and they're raced in competition. The racing is extremely close because the cars are similar. I think that the Mazda (or any other of the cars in this series) would be a great spec-class car that could help bring new blood into our hobby.

\*Here are the addresses of the companies mentioned in this article:  
Tamiya America Inc., 101 Columbia, Aliso Viejo, CA 92656.  
Tekin Electronics, 970 Calle Negocio, San Clemente, CA 92672.



*A speed controller wasn't included with the Mazda kit, so I used a Tekin 408S Sport—a high-frequency, budget-priced ESC.*

Holeshot Racing Products, P.O. Box 630, Canton, MA 02021.  
Speedworks; distributed by Trinity Products Inc.  
Trinity Products Inc., 1901 E. Linden Ave. #8, Linden, NJ 07036.  
JR Propo; distributed by Hobby Dynamics Distributors, P.O. Box 3726, Champaign, IL 61826. ■

## SPECIFICATIONS

Manufacturer ..... Tamiya  
Type ..... On-road  
Scale ..... 1/10  
Price ..... \$180

### DIMENSIONS:

Overall Length ..... 18 inches  
Width ..... 8.2 inches  
Wheelbase ..... 10.5 inches  
Front Track ..... 6.75 inches  
Rear Track ..... 6.125 inches

### WEIGHT:

Gross (with battery) ..... 3 pounds, 7.4 ounces

### BODY:

Type ..... Mazda 787B  
Material ..... Polycarbonate

### CHASSIS:

Type ..... Tub  
Material ..... Plastic/fiberglass

### DRIVE TRAIN:

Primary ..... Pinion/spur  
Transmission ..... None  
Differential ..... Ball diff  
Bearings/Bushings ..... 2 ball bearings, 7 bushings

### SUSPENSION:

Front: Type ..... Floating kingpin/coil spring  
Damping ..... none  
Rear: Type ..... T-plate  
Damping ..... Oil-filled, coil-over shocks

### WHEELS:

Front: Type ..... One-piece plastic  
Dimensions (DxW) ..... 1.75 x 1.25 inches  
Rear: Type ..... One-piece plastic  
Dimensions (DxW) ..... 1.75 x 1.75 inches

TIRES: (f/r) ..... Foam

### ELECTRICS:

Motor ..... Mabuchi Sport  
Battery ..... 7.2V stick\*  
Speed Controller ..... Electronic\*

### OPTIONS AS TESTED:

JR Propo receiver and transmitter, Tekin 408S Sport ESC with Holeshot switch clamp, JR 2035 servo, Trinity 1400mAh Maxilla pack, Speedworks 350 18-turn double motor.

### COMMENTS:

It wasn't built specifically for racing, but it's a blast to run. The Tamiya ball diff is extremely smooth, and it's even better if you add three bearings. The Tekin ESC performed well during testing; it only heated up slightly. Good, low-speed throttle control is possible because of the high-frequency switching. I can't say enough about the JR radio. Its six-model memory makes switching it from car to car a snap, and in the PCM mode, it provides fail-safe security.

\* not included

## FIRST JAPANESE AUTOMAKER TO WIN AT LE MANS

**N A SMALL town west of Paris, a Mazda 787B prototype model took the checkered flag at the world's most famous sports-car race—the 24 hours of LeMans. The sleek, rotary-engine Mazda, driven by England's Johnny Herbert, Belgium's Bertrand Gachot and Germany's Volker Weidler, finished two laps ahead of the leading entry from the defending-champion Jaguar team; this was the first time that a Japanese car had won sports-car racing's biggest prize.**

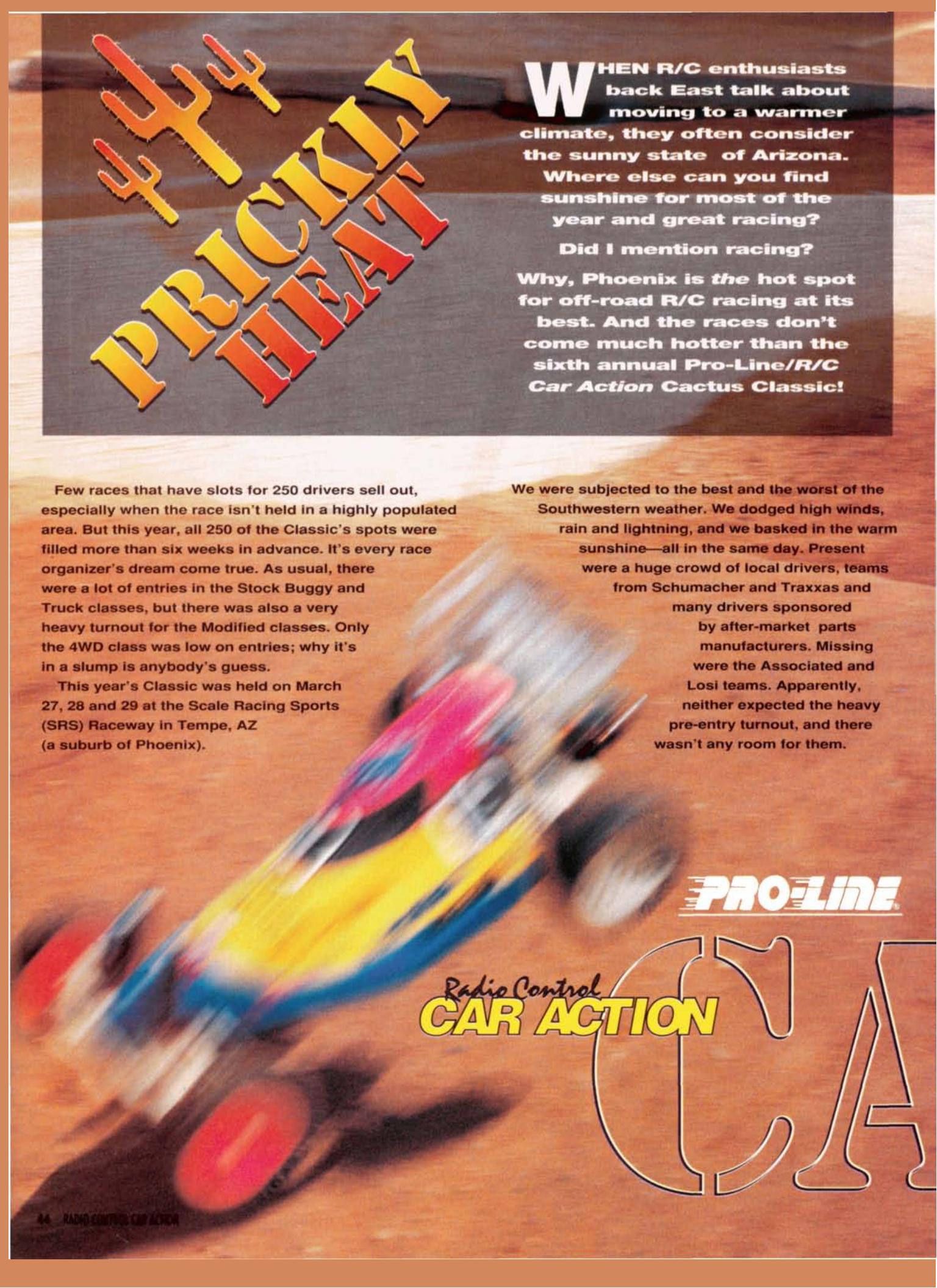
The MazdaSpeed team, captained at LeMans by six-time race winner Jackie Ickx of Belgium, triumphed over a field that included entries from Mercedes-Benz, Jaguar and Porsche—companies whose cars have dominated this classic event for nearly forty years.

As mechanical attrition took its toll, the Mazda drivers utilized the legendary reliability of the R26B four-rotor engine to move the 787B from 19th place to 1st with three hours left on the clock. They completed a record-breaking 3,058.9 miles at 127.307mph around the revised 8.45-mile Sarthe circuit.



COURTESY OF MAZDA MOTOR OF AMERICA

# PRICKLY HEAT



Few races that have slots for 250 drivers sell out, especially when the race isn't held in a highly populated area. But this year, all 250 of the Classic's spots were filled more than six weeks in advance. It's every race organizer's dream come true. As usual, there were a lot of entries in the Stock Buggy and Truck classes, but there was also a very heavy turnout for the Modified classes. Only the 4WD class was low on entries; why it's in a slump is anybody's guess.

This year's Classic was held on March 27, 28 and 29 at the Scale Racing Sports (SRS) Raceway in Tempe, AZ (a suburb of Phoenix).

WHEN R/C enthusiasts back East talk about moving to a warmer climate, they often consider the sunny state of Arizona.

Where else can you find sunshine for most of the year and great racing?

Did I mention racing?

Why, Phoenix is the hot spot for off-road R/C racing at its best. And the races don't come much hotter than the sixth annual Pro-Line/R/C Car Action Cactus Classic!

We were subjected to the best and the worst of the Southwestern weather. We dodged high winds, rain and lightning, and we basked in the warm sunshine—all in the same day. Present were a huge crowd of local drivers, teams from Schumacher and Traxxas and many drivers sponsored by after-market parts manufacturers. Missing were the Associated and Losi teams. Apparently, neither expected the heavy pre-entry turnout, and there wasn't any room for them.

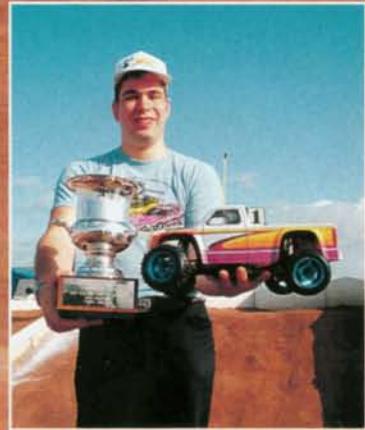
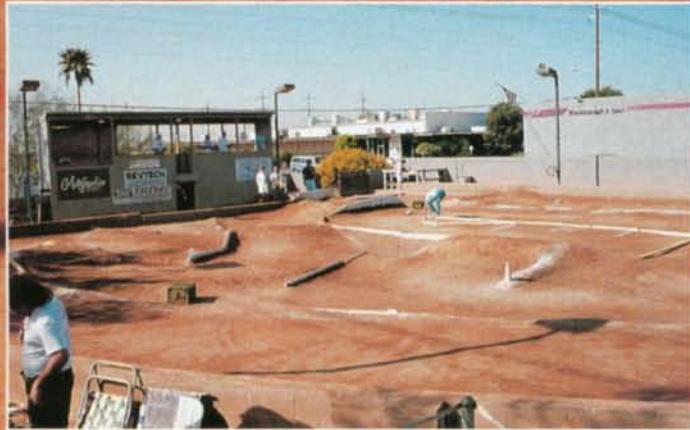
**PRO-LINE**

Radio Control  
**CAR ACTION**



by MIKE LEE

*Below left: the track layout was conventional except for the "ski jump" area. Below right: Kit Roberts' Concours winner is a Losi JRX-T Jr. truck with a Ford body. The paint was by Ted's R/C Creations. The win made Kit's trip from Alaska well worth it!*



PHOTOS BY MIKE LEE

RC CONCOURS

RC CONCOURS

# CACTUS

## THE TRACK

Although the track wasn't as unconventional as the one on which this race was held in '91, it was still exciting. You're the driver. You start on a long, sweeping straight that ends with a tight, 160-degree sweeper. A small, unnerving cliff leads you into a short hairpin and a set of three double jumps followed by a turn. You have to power up for the first double, land and turn; just as you get the

ous hairpin on the track. Take the turn and punch it again as you slingshot toward a tight dogleg at the end of a long straight. At the dogleg, you apply power again and set up for a right turn with a table-top jump in it. It's tricky! You can't just "sky" this one. You have to make the approach and stay on top, because at the bottom, a tight left dogleg greets you. After this, you head into the final turn, a right dogleg, and then you can jump on the power once more down the sweeping straight. It's a long track for major power and major speed.

## ...ABOUT THE WEATHER

The event began with a round of qualifying on Friday

afternoon and evening. Because there were so many competitors, it took about four hours to complete the first round of racing on Saturday morning. Nature interrupted the sunny scene



every couple of hours with light thunderstorms. They only delayed Saturday's races for 30 minutes at a time, but on Sunday, there was a major downpour and we lost more than 2 hours of track time. The race organizers were ready; they had dirt to lay over the track as soon as the rain stopped. Thanks to the efforts of the track crew, we were able to resume the racing very quickly, considering the amount of rain that had doused the track.

It was interesting to watch the Schumacher cars; they were equipped with every trick in the book to help the drivers handle this extremely hard track. Schumacher mini-pin spike tires were popular with most drivers, and owing to the hard surface, many



wheels straight, you take off over the second double; you land turning and take double number three on the run. (It takes timing and good use of the throttle to make all three cleanly.) After you've cleared the doubles, you punch it and head for the ski jump, at the top of which is the most treacher-



*Above: top qualifiers from the event (from left): Matt Francis, 2WD Stock; Chuck Erickson, Stock Truck; Brent White, 2WD and 4WD Modified; and Scott Anfinson, Modified Truck. The trophy girl is Suzy Burger.*



# CACTUS CLASS

drivers went through a set each run! Front tires were mostly ribs and staggered ribs, although those who wanted aggressive front bite used knobbies. As a driver, I found that Pro-Line Reds worked well; I used Pro-90 rears and staggered-rib fronts. Unfortunately, narrow front truck rims weren't allowed, but 2.2-inch buggy rims were. I also have to comment that the scoreperson, who entered the scores manually into a computer equipped with Autoscore software, had excellent control of that keyboard when the groups of cars flashed by.

## THE MAIN EVENTS

As for the racing, in the 2WD Stock Buggy class, Matt Francis not only took the TQ position, but he also won the A-Main with a clean run of 12 laps in 4:08.05. He was followed by Robert Gillespie and Jim Gard, both of whom were almost a half a lap back. Francis made a Sunday drive of this race; he was challenged only at its start.

In the Stock Truck qualifier, Chuck Erikson took his Traxxas to the top of the heap. To prove that his TQ was no



*This talented marshal can simultaneously flip two cars with his hands and one with his feet! Bravo!*



## 2WD STOCK

Fin	Qual	Name	Laps	Time
1	1	Matt Francis	12	4:08.05
2	2	Robert Gillespie	12	4:14.42
3	3	Jim Gard	12	4:18.72
4	5	Dan Carter	12	4:24.39
5	6	Ken Peterson	11	4:01.75
6	10	Bert Baldwin	11	4:05.32
7	4	Joe Carter	11	4:06.90
8	7	Steve Nelson	11	4:07.57
9	9	Todd Bullis	11	4:08.64
10	8	James Gallatin	11	4:08.96

## TRUCK STOCK



Fin	Qual	Name	Laps	Time
1	1	Chuck Erikson	12	4:15.62
2	4	Brent Thielke	12	4:21.15
3	2	Dave Boan	12	4:24.50
4	3	Jade Kurthi	11	4:01.23
5	7	Richard Weiss	11	4:03.57
6	6	Jason Foster	11	4:05.40
7	8	Bubba Johnson	11	4:06.13
8	5	Jerry Walter	11	4:06.94
9	9	Jeff Ronkin	11	4:19.21
10	10	Tim Miles	10	4:04.00



## 4WD STOCK

Fin	Qual	Name	Laps	Time
1	5	Ken Bolle	12	4:18.54
2	2	Aldo Ruiz	11	4:00.61
3	6	Rick Dennis	11	4:01.25
4	8	Gill Gutierrez	11	4:06.01
5	4	Craig Miller	11	4:06.62
6	1	Ryan Hicks	11	4:11.36
7	3	Jim Thomas	11	4:20.71
8	7	Ken Hohn	11	4:20.99
9	10	Bryan Klein	10	4:17.02
10	9	Dave Puczilowski	9	3:22.92

fluke, he pounded the rest of the field in the A-Main, and took 1st 6 seconds ahead of Brent Thielke and Dave Boan. Erickson hadn't quite finished for the day; he also took victories in lower Mains and garnered four trophies from

four classes.

Ryan Hicks took the TQ position in the

4WD Stock class, but Ken Bolle took top honors in the event, besting everyone in it by a lap. Aldo Ruiz and Rick Dennis battled for 2nd; Ruiz crossed the line just 1 second ahead of Dennis.

In the 4WD Modified event, there was a hot battle among James Brown, Scott Roberts and Derek Furutani. Brent White was the TQer, but he was quickly



C

Fin	Qual	Name	Laps	Time
1	1	Brent White	12	4:03.16
2	2	Scott Anfinson	12	4:09.69
3	5	Mark Francis	12	4:11.95
4	6	Matt Francis	12	4:12.24
5	4	Rick Hohwart	12	4:14.07
6	3	James Brown	12	4:18.50
7	9	Chris Fedock	11	4:00.21
8	10	Jonathan Morgan	11	4:01.20
9	8	Dan Carter	11	4:01.98
10	7	Jim Gard	11	4:20.42

## 2WD MODIFIED



## TRUCK MODIFIED

Fin	Qual	Name	Laps	Time
1	2	James Brown	13	4:21.47
2	5	Scott Roberts	12	4:02.01
3	4	Derek Furutani	12	4:05.35
4	6	Mike Dolan	12	4:06.20
5	1	Brent White	12	4:08.06
6	7	Eustace Moore	12	4:12.43
7	10	Aaron Biner	12	4:13.96
8	9	Jonathan Morgan	12	4:15.51
9	8	BJ Christensen	12	4:22.26
10	3	Jim Gard	1	0:05.84

## 4WD MODIFIED



C

snuffed. Brown, Roberts and Furutani traded spots until they tangled in a bad crash from which Brown emerged with the least damage. He sneaked past the clock (with a 13-lap run) as time ran out, while the rest of the bunch settled for 12 laps.

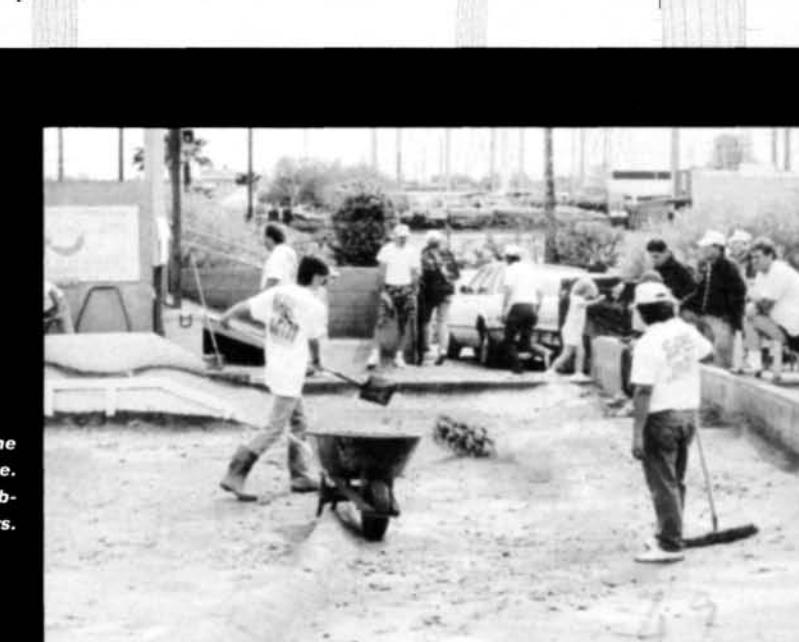
In Modified 2WD Buggies, White was again the TQer—the only driver to

hit 13 laps in the class. This time, however, White jumped out front and was last seen heading into the distance. The real action was behind him where local driver Scott Anfinson battled Mark and Matt Francis for position. All three went full-tilt in this race, and the crowd went wild! In the end, Anfinson pulled up 2nd, Mark 3rd and Matt 4th. Only 3 seconds separated them.

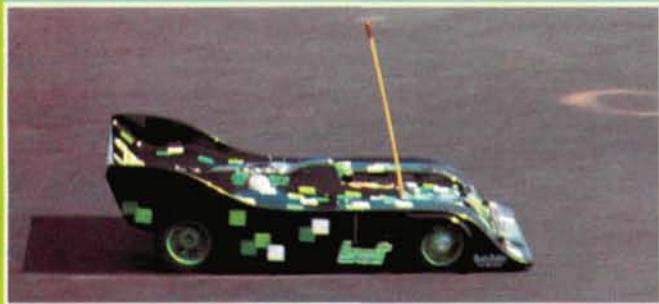
Anfinson had taken the TQ position in the Modified Truck class during Friday's qualifying round, and he wanted victory. At the start, he left Mark Vyne, Jon Anderson and Rick Hohwart to eat his dust. Anderson made a mistake early on that allowed Hohwart into 3rd and Jade Kurtchi into 4th. By the first minute, Anfinson had a straight-away lead; Vyne, in 2nd, led Hohwart by about the same distance. Halfway through the race, Hohwart faltered and fell in with the pack that was vying for 3rd. It wasn't until the final 45 seconds that the pack dispersed and Anderson broke away, followed by Vyne. At the end, Anfinson crossed the line with no challengers in sight, and Vyne rolled in some 4 seconds later. Anderson took 3rd, and Hohwart settled for 4th.

The racing was great, and we had a lot of fun in the pits. Thanks to Pro-Line for the excellent choice of track; the

SRS Raceway is a first-class facility with terrific employees. Although the weather didn't cooperate with the race management, it was no problem for these hard-working troopers when the rain fell. If you want off-road action, then this is a "must-attend" race. Take a hint from the entry crunch this year, though, and send yours in ASAP! Join us for fun in the sun.



**Track crew members threw new soil on the track after heavy rain delayed the race. Although the track had been almost submerged, we were racing again within 2 hours.**



CAR ACTION  
TRACK REPORT

**a**FTER THE BMT 891 won the '91 World Champs in Austin, TX, the people at Racers Choice\* proudly announced that they would be the exclusive importers of BMT's entire line. Since then, the 4WD 891 has become one of the hottest-selling 1/8-scale race cars in the industry, and now BMT offers a 2WD version that uses the same technology—the 892.

This car would be at home at the Nats or at a weekend series race, and the kit comes with everything you need—from bumper to bumper. In addition, the 892 doesn't require any after-market performance parts or special assembly techniques, so no one will have any advantages—or excuses.

#### THE KIT

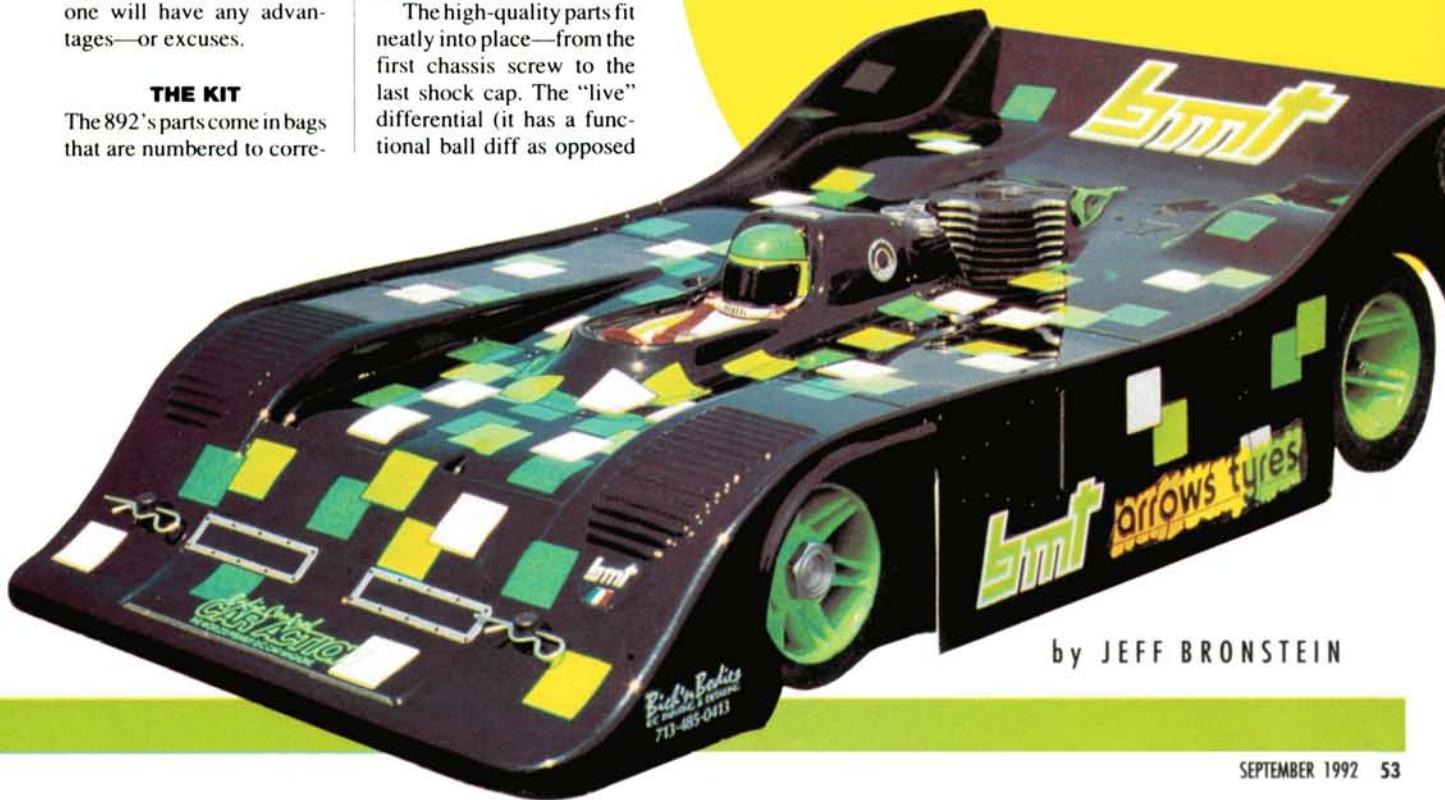
The 892's parts come in bags that are numbered to corre-

spond with steps in the instructions. Experienced gas racers will be able to assemble this car fairly easily but, unfortunately for novices, most of the manual consists of diagrams, and it skips some key steps that are unique to the 2WD model, e.g., those for the brake assembly. There are, however, partial instructions for other confusing procedures, and a video will be available soon to assist novice builders. In any case, the diagrams are better than those in other manuals I've read, and the kit includes a full exploded view of the car that's very helpful. In addition, Racer's Choice provides BMT owners with excellent support.

The high-quality parts fit neatly into place—from the first chassis screw to the last shock cap. The "live" differential (it has a functional ball diff as opposed

## Puttin' on the Blitz

**bmt 892**



by JEFF BRONSTEIN

to the 891's "locked" diff) the four-shoe clutch and the optional centripetal two-speed transmission (an essential item if you want to race) are factory assembled and ready to be installed. This is a big plus for beginners, because these complex units are usually hard to assemble.

#### A FEW POINTERS

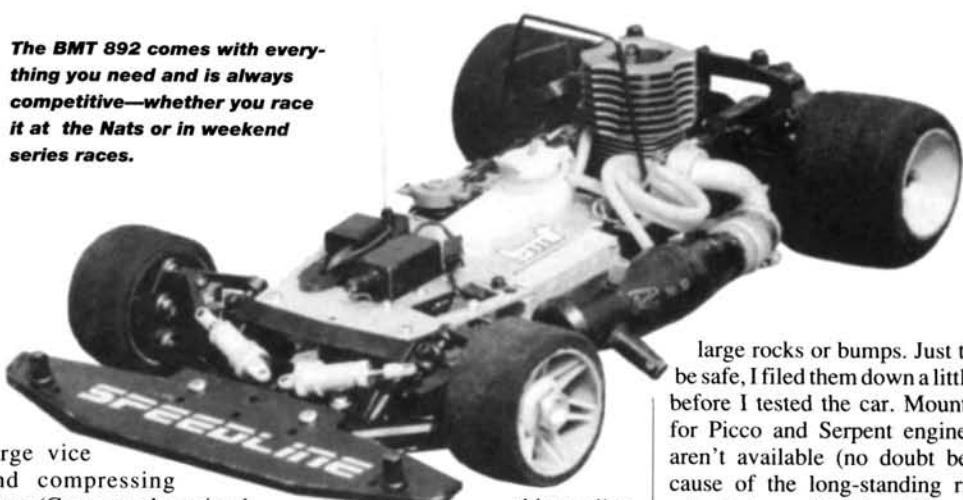
As with any race car, it's essential that the 892's suspension parts move freely. Polish the pivot balls and pins carefully, and be sure

• • •  
**"BMT cars are remarkably adaptable, because you can adjust virtually every major aspect of their suspensions"**  
• • •

not to remove any material from the balls or they won't fit in the sockets properly. Also, remove the flashing from the molded parts, because it will interfere with the motion of the arms.

The front suspension's torsional springs are a little stiff, but you can reduce their tension by putting them side by side in a

*The BMT 892 comes with everything you need and is always competitive—whether you race it at the Nats or in weekend series races.*



large vice and compressing them. (Compress them simultaneously so that the tension will be reduced in each one equally.) The instructions tell you to bend the ends of the small spring-retention wires that hold the quick-change rear wheels in place, but this is very difficult. Instead, put a small setscrew collar on the end of each wire, and cut off the excess. The collar will act as a small "button," and this will enable you to change the wheels easily.

#### GOIN' FOR THE GEAR

It's easy to install the radio equipment in the completed car. For

this application, I used Airtronics\* new Pro Series, high-torque servos for throttle and steering. Not only are they strong, but they also have very fast transition times, and they're sealed, so fuel can't enter their cases. Strong nylon brackets hold the steering servo securely between the chassis and radio tray, and the throttle servo is mounted under the radio tray.

Although it's easy to mount the NovaRossi\* 2000 engine, the lower mounting screws aren't flush with the bottom of the chassis, so they could be damaged by

large rocks or bumps. Just to be safe, I filed them down a little before I tested the car. Mounts for Picco and Serpent engines aren't available (no doubt because of the long-standing rivalry between BMT and Picco), but you can elongate the mounting holes on them to accommodate the 892's mounts. The kit has a unique throttle-servo override that's inside the servo-saver but, to improve throttle response, you should replace the thin linkage wire that's included.

To top off the whole package, I called on Scot Bich at Bich'n Bodies\* to create one of his masterpieces of Lexan wizardry. Scot reproduced BMT's trick "flying-box" design on a Parma\* World Champion VDS Lola body, and the results are truly bold.

## S P E C I F I C A T I O N S

**Manufacturer** ..... BMT  
 (Blitz Model Technica)  
**Type** ..... On-road  
**Scale** ..... 1/8  
**Price** ..... \$495  
 (with diff and one-speed tranny)

**DIMENSIONS:**  
**Overall Length** ..... 17.75 inches  
**Width** ..... 10.375 inches  
**Wheelbase** ..... 12.375 inches  
**Front track** ..... 9.875 inches  
**Rear track** ..... 10.375 inches

**WEIGHT:**  
**Gross**  
 (with battery) ..... 5 pounds, 4 ounces

**BODY:**  
**Type** ..... Not included

**CHASSIS:**  
**Type** ..... Full-suspension pan  
**Material** ..... Aluminum

**DRIVE TRAIN:**  
**Primary** ..... Pinion/spur/clutch  
**Transmission** ..... Two-speed  
 centripetal auto (optional)  
**Differential** ..... Ball diff  
**Bearings/Bushings** ..... Ball bearings

**SUSPENSION:**  
**Type (f/r)** ..... Double A-arm/H-arm  
**Damping (f/r)** ..... Oil-filled shocks

**WHEELS:**  
**Front/Rear** ..... One-piece nylon

**TIRES:**  
**Front** ..... Atlantic Gomme\* 35/medium Foam  
**Rear** ..... Arrows\* Pink 40/hard Foam

**OPTIONS AS TESTED:**  
 BMT two-speed centripetal transmission and four-shoe advancing clutch; Airtronics CS-2P and Pro Series servo (high torque); Parma 1/8-scale VDS Lola body; NovaRossi 2000 with a Rex\* High-Energy Quite Pipe; Cunningham\* ProRace Fuel; Bich'n Bodies painting and detailing.



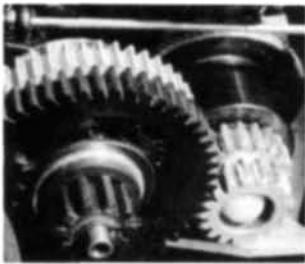
**COMMENTS:**  
 The BMT 892 is an excellent car for first-time racers or national champs. Its adjustable suspension is very efficient. The quality of the parts is good, but the instruction manual should be more specific about the procedures that are unique to the 2WD model. Racer's Choice, however, provides racers with an unprecedented amount of support, so now, there can be no excuses!



**It's strange to see shocks without springs around them. To provide torsional resistance, the springs are attached to the lower suspension-arm pivot pins.**

#### FEATURE FEST

BMT cars are remarkably adaptable, because you can adjust virtually every major aspect of their suspensions. To adjust rear toe-in/out, front and rear camber and,



**BMT's optional two-speed tranny is considered mandatory equipment for serious racers. Color-coded gears make selection quick and easy.**

to some degree, track width, the 892's unique ball pivots can be threaded into and out of the suspension arms easily. Each arm has a separate ride-height adjustment, and you can mount the rear suspension in one of three positions, so you can alter the location of the rear roll center. Although the 2WD brake configuration prohibits the use of the stock rear anti-roll bar, a reasonably inventive mechanic could make one if it became necessary. BMT's trademark color-coded gears make counting teeth and calculating ratios a thing of the past.

The 892's front-suspension geometry is unusual. Instead of being parallel to the lower arms, the upper arms are canted forward, so caster is automatically adjusted whenever the suspension is compressed. (The upper

kingpin support moves forward, and this reduces caster.) This setup was undoubtedly designed to prevent "lift" on 4WD cars, but it also seems to stabilize 2WD cars on the straights without sacrificing cornering ability.

#### PERFORMANCE

Before the first track tests, I spent a lot of time setting up the car's suspension. I don't usually expect a new car to perform well until I've sorted out its strengths and weaknesses, but the BMT surprised the heck out of me. During its very first run, it handled like a seasoned racing veteran. Chassis roll was minimal and cornering performance was outstanding. Its rear suspension tended to "collapse" in one exceptionally fast sweeper, but the car's overall performance was excellent.

The clutch has an advancing, spring-loaded shoe that provides smooth acceleration with very little slippage. BMT's well-built, 2-speed tranny is extremely smooth, but its adjustment screw

was tight until the factory installed thread-locking compound had a chance to loosen. In fact, after several tanks of fuel, the gears and the suspension arms seemed to "wear in," and the car became even smoother.

I admit that I'm hard on most test cars, and 1/8-scale racing is my true passion, so I gave the 892 a thorough workout. It bounced back unscathed from two mishaps, but one hard

assembly may be the only two "under-designed" areas of the entire car.

I had planned to test the car by itself, but it performed so well that I was confident that it could handle a Main. On the track with some of the best 2WD racers in the country, the BMT 892 held its own. But what made this car a true winner was that it didn't require modifications or special trick parts to be competitive. To race, I just put it together, set it up and put it on the track.

The durable BMT 892 is perfect for both weekend warriors and championship racers. It's re-



**The front upper suspension arms are canted forward, so caster is automatically adjusted whenever the suspension is compressed.**

front-end hit caused the front bumper screws to be ripped out of the bulkhead. (You can use larger screws to prevent this type of failure.) In fact, the bumper and the front shock-tower as-

liable, adjustable and, in the right hands, unbeatable. It works flawlessly right out of the box, and it only requires average maintenance. Until you've felt the speed and smelled the nitro, you haven't fully experienced the thrill of R/C racing. Now, you don't have any excuses not to.

\*Here are the addresses of the companies mentioned in this article:

**Racer's Choice/Arrow Tyres USA**, 6N258 Acacia Ln., Medinah, IL 60127.

**Airtronics Inc.**, 4 Autry, Irvine, CA 92718.

**NovaRossi**, distributed by Rossi USA, 214 Harvest Ave., Staten Island, NY 10310.

**Bich'n Bodies**, 4903 Cloverfield Rd., Pearland, TX 77584.

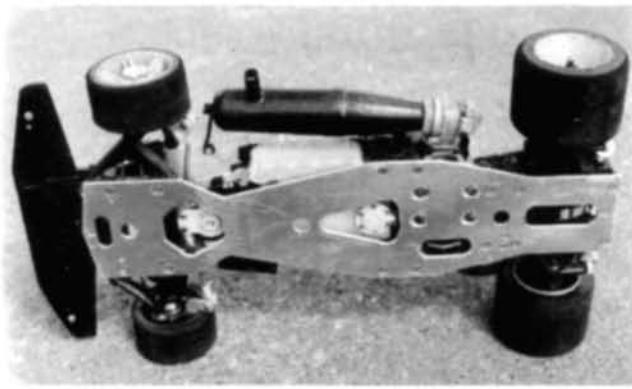
**Parma International Inc.**, 13927 Progress Pky., North Royalton, OH 44133.

**Atlantic Gomme**; distributed by Paris Racing, 4254 Independence St., Chino, CA 91710.

**Arrow Tyres**, see above.

**Rex**; distributed by Paris Racing, above.

**Cunningham**, c/o Hobbies 'N Stuff, 9577 Osuna Rd., NE Albuquerque, NM 87122.



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## SHOCK TECH

(Continued from page 24)

To compensate, increase the weight of the oil, e.g., go from 20W to 30W.

If the front end is too high off a jump, your front springs could be too stiff, but the problem is probably your driving style. Chances are, you're approaching the jump too fast. Slow down, and try it again.

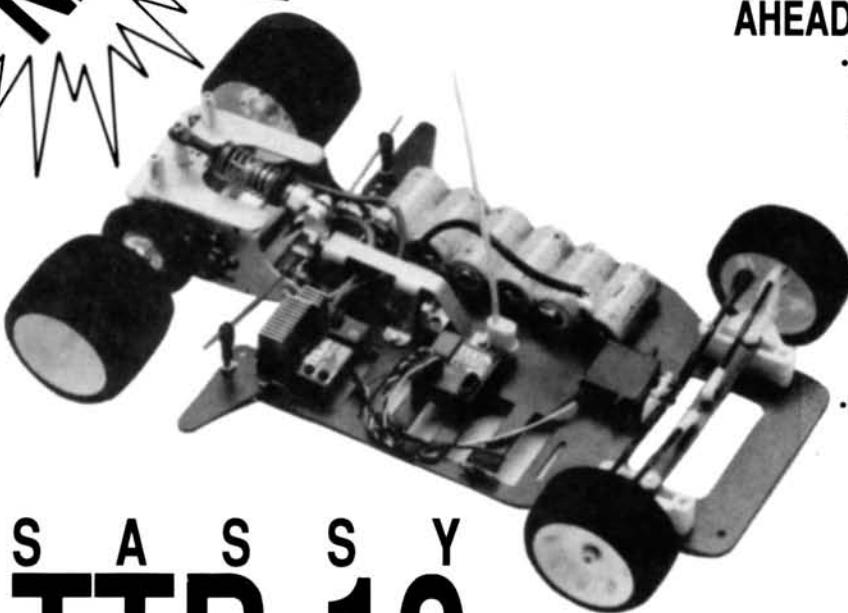
True or false? If you change the position of your shock collars, you also change the spring tension on your shock. False. "All you do when you change your shock collars is adjust your ride height," says Cliff Lett. "If you want a stiffer spring, the only way to achieve that is to add a heavier spring. Also, you have to keep in mind that not only does your suspension control up and down travel, but it also controls the amount of side-to-side movement, weight transfer and body roll."

Ride height also affects your steering. The higher the center of gravity, the better the steering will be. "Trust the manufacturer's recommendations, and closely follow the shock-building instructions," says Cliff. "Don't try to re-invent the wheel. The technical research and development that goes into these cars would impress any full-scale car designer."

(Continued on page 86)

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\$399.95

by FRANK MASI

# SPEEDWORKS SPORTSMAN CUP



The Invitational Class A-Main with trophy-girl Amie. Interestingly enough, most of the Invitational "A" was made up of local hot shots. Frank Calandra (third from right) was the only big-name driver to make this Main.



Sportsman Class racers are all unsponsored and compete only against drivers of equal skill. A-Main winner John Holbrook (second from right) beat nearly 100 other competitors to take the win.



The winners of the first race of the '92 Speedworks Sportsman Cup Series: John Holbrook (left) won the Sportsman Class, and Ryan Korek won the Invitational Class.

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**T**HIS IS A letter to the organizers of the Speedworks Sportsman Cup. I congratulate you on your efforts to try to 'see who drives the best.' So many times, batteries have made the difference, not to mention the motors. This idea should bring it back to driving ability. I've been racing 1/12-scale cars for over 12 years, and I applaud the steps you've taken. I truly believe the battery situation will be one of the major downfalls in the hobby (because of the cost), and I'm afraid that, sooner or later, R/C racing is going to end up just like slot-car racing.

I wish I owned a 1/10-scale car, because if I did, I'd sign up for this event. Good luck, and I hope it's a success."

So writes an active participant in our sport who, like many, thinks that a driver's skill should be the determining factor in a race, not the motor or the battery.

## THE PREMISE

The dates were March 28 and 29, and the place was Karen and Nick Kahl's K&N Speedway in Stafford Springs, CT. The event was the first race of the '92 Speedworks Sportsman Cup Series. The idea behind the Series is simple: create a "level playing field" by eliminating as many variables as possible.

In electric R/C racing, the two most decisive factors (aside from the driving, of course) are the batteries and the motors. Many race organizers hand out stock motors, but competitors who use the latest, hottest cells still have an advantage. To address this problem, those who take part in the Speedworks Series can use only handout batteries and motors. Each pack is hand-engraved with its own serial number, which is checked during the tech inspection.

## Connecticut Carpet Cruisers



**WORLD-CLASS TALENT**

Since sponsored racers aren't allowed to take part in the Sportsman Class, each Speedworks Series race has an Invitational Class so that these drivers can compete against one another—not against unsponsored competitors. This class often draws some of the country's best, and the '92 event was no exception. Former world champ Joel "Magic" Johnson made the trek to Connecticut from sunny California; Jim Dieter, designer of Trinity's new ReFlex 10 dirt-oval car and Novak's Tyree Philips were also on hand. Even Composite Craft's Andy "Sticks" Dobson came out for this race. In addition, Frank Calandra and Willy Decker were campaigning the SP-10—Corally's newest  $\frac{1}{10}$ -scale car. Calandra won the Modified Class at this year's ROAR  $\frac{1}{12}$ -Scale 4-Cell Nats, while Willy proved himself unbeatable in the Stock Class and picked up the national championship. These six drivers, plus 27 others, made up the Invitational Class and, needless to say, the competition was fierce.

**THE FACILITY**

Located on the Stafford Motor Speedway grounds, just mere yards from the full-size race-track, the K&N facility features an indoor, banked, carpet track, a fully stocked hobby shop, a snack bar and enough pit space to accommodate the nearly 150 entrants who turned out for the race. The track was smooth and fast, with just enough banking to make things challenging. In order to win, the driver has to know how to get the most from his chassis and motor.

**SPORTSMAN QUALIFYING**

To say that qualifying was close in the Sportsman Class would be an understatement; we're talking microseconds! There were only seven

A-Main spots to be filled, and each of these racers wanted one. Top Qualifier John Holbrook managed to hustle his Associated 10L SS around the K&N track for a 49-lap run in 4:01.46—that's just a little more than one lap behind the Invitational Class TQ run, so we know that the Sportsman Class doesn't mean slow! Keith Roberts followed Holbrook with an incredibly close 49-lap run in 4:01.71. If there could have been two top qualifiers in one Main, it should have been these guys. Next fastest on the track was Robert Fisher, who just barely missed making a 49-lap run. Rounding out the A-Main field behind Holbrook, Roberts and Fisher were Rick Hubbert, Carlos Vazquez, Gary Hallenbeck and Brock Garris. Interestingly enough, the 4th through 7th-place qualifiers were all within 4 seconds of one another. I told you it was close!

**INVITATIONAL QUALIFYING**

Throughout the qualifying, it looked as if the local talent would be the dominant force, as all seven drivers to make the A-Main were from the East Coast. Team Trinity's Ryan Korek had the K&N track nailed; not only did he TQ with a run of 50 laps in 4:01.28, but he also turned 50 laps

in all four of the qualifying rounds (the only driver to do so).

The battle for the 2nd-place spot on the A-Main starting grid was between Sal Dimauro and Duke Brannon. Dimauro pulled out all the stops in his last qualifier and ran 50 laps in 4:02.61, while Brannon's best time was a 50 in 4:02.98, relegating him to 3rd. The rest of the A-Main lineup included Charlie Newman, Erin Rand, Ken Tuttle and Frank Calandra (the only "big-name" driver to make the "A"), and they each turned in 50 laps.

**DOES THE CONCEPT WORK?**

The big question on everyone's mind was whether or not the Speedworks concept actually worked. Was the racing closer with the batteries and motors removed from the equation? The answer, for me, anyway, was a resounding yes! Anyone who had watched the qualifying would have told you that the only differences between the drivers who qualified in the A-Main and those in the lower Mains were the lines that they took and how "cleanly" they drove them. Yes, there were some cars that appeared slightly quicker than others, but this could be attributed to the driver's ability to tune his car to carry more speed through the corners and, hence, enter the straights a little faster.

**SPORTSMAN CLASS A-MAIN**

Holbrook used his number-one starting position

**SPEEDWORKS SEMINARS**

As if watching some of the best head-to-head racing in the country wouldn't be enough to satisfy you, there's always something happening at a Speedworks Sportsman Cup race. If you're tired of merely reading about the world's top drivers and would actually like to meet them, attend a Speedworks' seminar.

Most Speedworks races feature seminars that cover a wide variety of topics. Tyree Philips of Novak might have some helpful hints on how to avoid radio



*Ernie Provetti, creator of the Speedworks concept, makes the knowledge and experience of the pros more accessible to novice racers.*

glitches, while Kevin Maurer of Trinity might explain how to get the most out of your motor and batteries. One of the most popular seminars is the question-and-answer session for drivers. This open forum, emceed by Trinity's Ernie Provetti, allows race participants to pick the brains of the pro drivers. With racers like Joel Johnson, Andy Dobson, Frank Calandra and Jim Dieter on hand, you can find out virtually anything you'd like to know about R/C racing.



*Concours winners: left to right—Kevin Gray, 1st place; John Zimowski, 2nd place; James Radord, 3rd place.*



*Left to right: Sanyo's Patricia Takeda, Ryan Korek with his 1st-place Invitational Class trophy, Amie Zimowski and Novak's Tyree Phillips.*

## SPEEDWORKS

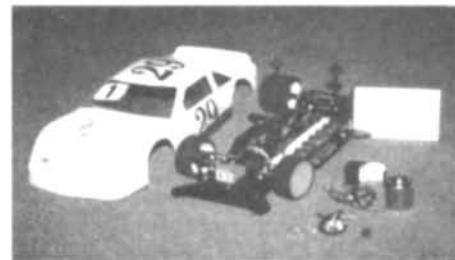
to get the jump on the rest of the field and take the lead into the first turn. Roberts, however, didn't make it an easy race for him, as he stuck his 10L (one of the few wide cars) to Holbrook's bumper and hung on for the duration. Meanwhile, 3rd-place qualifier Fisher, who wasn't having a good time, dropped back to 7th. With Holbrook and Roberts out and gone, the battle for 3rd was heating up between Hubbert and Hallenbeck, who were both attempting to occupy the same space on the track. In the end, it was Holbrook who won, with Roberts a scant 1 second behind. Hubbert managed to fend off

Hallenbeck, and the two finished 3rd and 4th, respectively.

### INVITATIONAL CLASS A-MAIN

This was the big event. As the crowd gathered around the track and Nick Kahl announced the drivers, silence prevailed. Just as he'd done in qualifying, Korek was determined to dominate the Main. He shot out at the sound of the horn and never looked back; his car seemed to be on rails! Dimauro had his hands full trying to fight off the rest of the pack, and he did a good job of it—except with Calandra, who was out to prove

that...well, he's Frank Calandra! He came off with a bad start, but he slowly picked off one car at a time. At the 3-minute mark, he found himself right behind Dimauro, who was running in 2nd. Wasting little time, Calandra put a move on Dimauro and set off in pursuit of Korek. The battle with Calandra had allowed the rest of the pack to close in on Dimauro,



**The only bad thing about winning the A-Main is that your stock motor gets torn down. I don't think Holbrook and Korek minded too much; their cars were perfectly legal.**



who wasn't about to have any of that and held his ground. At the 4-minute mark, Korek crossed the line first, followed closely by Calandra (another minute, and who knows). Dimauro maintained his 3rd-place position, followed by Brannon, Newman and Rand. Tuttle managed one lap and subsequently retired with mechanical difficulties.



**Ernie Provetti and Joel Johnson raffled off dozens of prizes to lucky racers. The raffle was just one of the many attractions at the Sportsman Cup Race.**

## SPEEDWORKS SPORTSMAN CUP

### SPORTSMAN

Fin	Qual	Name	Chassis	Motor*	ESC	Radio	Batteries**	Charger	Body	Front Tires	Rear Tires
1	1	John Holbrook	RC10L SS	h	Tekin 411P	Futaba PCM	h	Victor HI-IQ	Bolink Pontiac	TRC	TRC
2	2	Keith Roberts	RC10L (wide)	a	Novak T-1X	Futaba Magnum Jr.	a	Victor HI-IQ	Bolink T-Bird	TRC	JACO
3	4	Rick Hubbert	Bolink LTO (wide)	n	Tekin 600	Airtronics	n	ProTech 701	Bolink Grand Prix	JACO	JACO
4	6	Gary Hallenbeck	Composite Craft LTO	d	Tekin 411P	Futaba Magnum Jr.	d	Tekin	Bolink Grand Prix	TRC	TRC
5	5	Carlos Vazquez	TRC Lynx SS	o	Tekin 411P	Futaba Magnum Jr.	o	Tekin Reflex	Bolink Lumina	TRC	TRC
6	7	Brock Garris	RC10L	u	Novak	KO Propo	u	Novak	Bolink Pontiac	JACO	JACO
7	3	Robert Fisher	RC10L SS	t	Tekin 411G	Futaba PCM	t	Victor HI-IQ	Bolink	TRC	TRC

### INVITATIONAL

Fin	Qual	Name	Chassis	Motor*	ESC	Radio	Batteries**	Charger	Body	Front Tires	Rear Tires
1	1	Ryan Korek	Composite Craft 10L	h	Tekin 411G	KO Propo EX-1	h	Tekin	Bolink Pontiac	JACO	JACO
2	7	Frank Calandra	Corally SP10	a	Novak MXc	KO Propo EX-1	a	Class	Andy's T-bird	Du-Mor	Du-Mor
3	2	Sal Dimauro Jr.	RC10L SS	n	Tekin 411G	Futaba PCM	n	Victor HI-IQ	Bolink Pontiac	TRC	TRC
4	3	Duke Brannon	RC10L SS	d	Novak	Futaba PCM	d	Victor HI-IQ	Bolink Pontiac	TRC	TRC
5	4	Charlie Newman	Upton Stealth	o	Novak MXc	Futaba PCM	o	Novak Digi Peak +	Bolink T-Bird	JACO	JACO
6	5	Erin Rand	Composite Craft Lynx	u	Novak MXc	Futaba PCM	u	Victor	Andy's Olds	JACO	JACO
7	6	Kenneth Tuttle Jr.	TRC Lynx SS	t	Tekin	Futaba	t	Novak	Bolink	JACO	JACO

### SPONSORS:

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2. Team Class Racing, Trinity, Du-Mor R/C, Corally
3. B&T Batteries, RSR Dyno, Tri-Town Travel
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5. CAM, JACO, Stafford Realty, Russel Hustle Performance Chassis
6. Voodoo Racing Cells, JACO
7. CAM, JACO, R/C Madness



**Look at all that talent in just one of the qualifying heats of the Invitational Class! Pictured left to right: the Magic Man, Trinity's Shane Kochar, Frank Calandra and Andy "Sticks" Dobson.**

\*The handout motor was a Speedworks Epic

\*\*The handout batteries were Trinity 1400 SCRs

## AMERICAN INGENUITY

We all know that tampering, i.e., opening the can, with stock-class handout motors is a no-no, but have you ever wondered why, even with handout motors, some cars seem faster than others on the track? Most reactions range from, "Shoot, look at that sucker go! Now you know that motor ain't legal" to "Must be one of those one-in-a million motors...lucky stiff!" More than likely, both of these responses are off base.

The whole point of races like the Sportsman Cup is to ensure that the handout motors and batteries are all the same. (The fact that Trinity's number-one driver, Joel Johnson, didn't even make the A-Main should tell you how fierce the competition can be!) So where does the advantage lie?—in the ability to fine tune

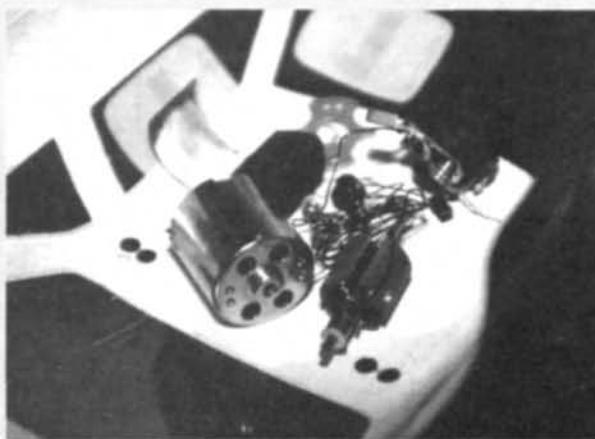
your motor, because without the necessary skills to tune your car to the track's surface, your driving talent will be rendered useless.

I've been involved in R/C racing for quite a while, and I've seldom come across a case of illegal motor tampering. People just aren't doing it much, especially with the new generation of tamper-proof stockers. Besides, if you win, your motor will be taken apart to see if it's legal.

After the A-Mains had been run, Trinity's Kevin Maurer tore apart the motors of the

first three cars from each A-Main. They were all legal, even though the original brushes and springs had all been replaced with improved versions.

Kevin was determined to find out why Invitational winner Ryan Korek's motor performed so well. After studying the compo-



*Motors of the winning cars are torn down after the A-Main to ensure their legality.*

nents for a few minutes, Kevin looked up and said, "Ah-ha! So that's what he did!" Apparently, Korek's father, rumored to be a veteran of the slot-car ranks, put polishing compound between the armature shaft and the bushing to enlarge the bushing's inside diameter slightly and polish its surface. What this does, boys and girls, is allow a bushing-equipped stock motor to spin like a ball-bearing-equipped modified. Clever people, these R/C racers.

### NO FROWNS HERE!

A national championship wasn't on the line, and sponsors weren't in search of new drivers; there was just a bunch of people who shared a common interest—R/C car racing. This is what racing is all about. This Speedworks Sportsman Cup was one of the most pleasant events I've ever attended. Very few tempers flared and, thanks to the K&N staff, everything went well with very little wasted time. The handout motors and batteries made the competition fierce, and they eliminated the "unfair advantage" that seemingly plagues R/C races. On behalf of those in attendance, I'd like to thank Trinity for organiz-

ing and promoting these races. It's a shame that others don't jump on the bandwagon; R/C racing could only benefit.



*Kevin Maurer spent the weekend helping racers with their motors and answering questions. Here, a young racer is trying to find out, i.e., demanding to know, why his motor isn't as fast as those of his pals.*



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The 200 offers a choice of three reservoirs: 3/4 and 2 oz. paint jars, plus 1/4 oz. color cup. The 200 adapts to three different heads: (F) extra-fine, (M) medium, (L) heavy. This gives you the versatility to spray any type material. Internal mix air-brushes produce a smoother, finer dot pattern than the external mix air-brushes. Single action refers to the method used to trigger the air-brush.



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**T**HIS SPRINTER is one of the most elegant cars in the rapidly growing 1/4-scale R/C class. In almost every detail, it's a faithful, functional copy of a full-size sprint car.

The Sprinter's builder, Tom Wenzel, has a rather unique background. He built and successfully raced four full-size midget cars in the '50s. His expertise was then sought by other car owners who needed help to set up their own cars to handle properly on the race track.

Tom became interested in 1/4-scale cars three years ago, and, in this relatively brief period, he has built 30 cars, three of which are powered by V8 engines. (This is only natural...three of Tom's full-size midget cars were V8-powered.) Tom, like many others who are involved in this sport, is intrigued that 1/4-scale cars handle in the same way as their full-size counterparts on the track. In races, where as many as eight cars can be on the track at once, speeds have exceeded 70mph.

Tom's Sprinter is approximately 27 inches long, and it weighs 17 pounds ready to race. It has a 21-inch wheelbase and a 16-inch track center to center. It's 6 1/2 inches from the top of the air cleaner to the bottom of the crankcase pan. The entire "space-frame" chassis is made of aircraft-grade 4130 chrome-

moly steel tubes that Tom welded together. He used the strongest materials available to make this car, e.g., 7075-T6 aluminum in the axle.

Like those of its big brothers, the Sprinter's suspension system has torsion bars on both the front and the rear "live" axle, and hydraulic shocks on all four corners. Tom mounted 5 1/2-inch-diameter slicks on the front wheels and 6 1/2-inch-diameter rubber tires on the rear wheels, although 8-inch-diameter tires in the rear would be exactly to scale.

The 6-pound, 8-cylinder, overhead-valve pushrod Conley\* engine is a masterpiece of precision engineering. It has a total displacement of 50cc and a piston diameter of 7/8 inch. It's rated at slightly more than 2hp at an incredible 10,000rpm! Remember, this is a pushrod engine, so it will also idle down to approximately 2,500rpm.

Tom fills the 6-ounce fuel tank with a mixture of



PHOTOS BY FRANK GUDAITIS

# 1 / 4 • S C A L E Sprinter

by FRANK GUDAITIS



*This fully functional 1/4-scale V8 engine is the heart of the Sprinter. This 6-pound, 3ci engine is capable of pumping out more than 2hp at a mind-blowing 10,000rpm!*

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## 1/4-SCALE SPRINTER



**Tom Wenzel's scratch-built Sprinter is a masterpiece of ingenuity and fabrication. The entire chassis is made of hand-welded chrome/moly steel tubing.**

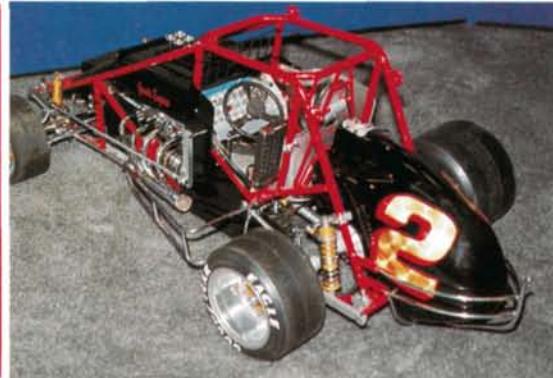
methanol, 15-percent-nitro, and a 50:1 fuel/oil mixture. Tom built a scale version of a Walbro butterfly-valve carburetor and installed it below the "fuel injector" tubes and the air filter. A 3V battery in the tail lights the glow plugs, which are regulated by the throttle control. The radiator, catch tank and engine are cooled by approximately 1 pint of water.

Power from the engine is coupled to the

functional oil cooler with tubes is mounted on the left side of the cockpit. The instrument panel has a "tachometer" dial and a glow-plug energizing switch that has an indicating light to help Tom conserve battery power.

The Sprinter is controlled by three R/C channels (throttle, steering and brake). An on-board 12V battery energizes the miniature electric starter that's mounted on the left side of the engine.

**"The Sprinter is controlled by three R/C channels (throttle, steering and brake). An on-board 12V battery energizes the miniature electric starter that's mounted on the left side of the engine."**



drive shaft through a centrifugal clutch. A disk brake that's controlled by its own servo is mounted on the drive shaft behind the clutch housing. Although the car doesn't have a transmission, Conley has developed a forward, neutral and reverse gearbox.

The miniature Halibrand-type rear end consists of helical gears in a quick-change box. It's manufactured by Seco Racing Products\*. Tom has the car's gear ratio set at 6:1, but nine other gear-drive combinations are possible with this rear end.

The very realistic cockpit details include a padded steering wheel, a functional seat belt and shoulder harness, a "gas" pedal, a "brake" pedal and a hand-brake lever. A non-

Like their full-size counterparts, these cars often cost a lot to repair. They can even cost more to repair, but that doesn't seem to discourage most enthusiasts.

Large cars like Tom Wenzel's Sprinter can be made to look more realistic than smaller ones. Seeing eight of these beasts screaming through a turn confirms what R/C racers have been saying all along: these things ain't toys!

\*Here are the addresses of the companies mentioned in this article:

**Conley Precision Engines Inc.**, 825 Duane Ave., Glen

Ellyn, IL 60137.

**Seco Racing Products**, 2329 S. Otis, Santa Ana, CA

92704.

# SCOPING OUT

## SCI POWER CARD

by JOHN RIST

**T**HERE ARE two versions of the SCI\* Power Card electronic speed controller (ESC). They look like twins, but they're big brother and little brother. One is rated for 1,000 amps at 4 to 40 volts; the other is rated for 600 amps at 4 to 12 volts. In an earlier column, I looked at the Power Card 1,000; it's time to look at the 1,000's little brother—the Power Card 600.

- a limiter to reduce motor current automatically when the battery voltage gets low (to eliminate the possibility of steering loss and runaway when the battery dumps);
- an instruction sheet and a hot set of SCI decals.

To look inside, I had to take two, self-tapping Allen-head screws out of the bot-

wasn't at first clear to me, because it isn't labeled on the case. A quick check of the one-page instruction sheet enlightened me: the pot is used to set neutral, and there's no need for a second pot because the full-speed setting is fixed at the factory and doesn't require further adjustment.

I gave the controller some battery juice, set my transmitter throttle trim to its midpoint and rotated the trim pot. I found the pot a little odd because it doesn't have an end-of-travel stop. Instead, it will turn 360 degrees and then keep going for another trip around. This rotation is a little confusing when you're trying to set it. The trick for setting the throttle is to watch the yellow LED, which indicates brakes. Crank the pot counterclockwise until the yellow LED comes on; then continue to turn it in the same direction until it goes off. Then rock the pot adjustment a little to make sure that its setting is just on the verge of turning on the yellow (brake) LED.

After doing that, I checked for full-throttle operation with an oscilloscope and found that, indeed, the full-speed adjustment had taken care of itself.

### VOLTAGE-DROP TEST

First, I always check an ESC's resistance, because it's a controller's most important quality. With 12 amps of current flowing, the voltage drop along the full length of the wires was 0.13 volt—a resistance of 0.011 ohm. At 2 inches along the wire, it was 0.10 amp—a resistance of 0.008 ohm.

So, on this test, the 600 did better than its big brother (the 1,000A Power Card's resistance 2 inches along the wire was 0.013 ohm). Why? The 600 has a 12V rating (nine cells), whereas the 1,000A model has a 40V rating (32 cells). In general, high-voltage FETs tend to have higher "on" resistance.

### LET-IT-COOK TEST

I adjusted the resistor bank so that it passed 18 amps of current, then I jammed

(Continued on page 76)



When I opened its package, I realized that I was looking at an out-of-the-ordinary ESC—very thin, but fairly wide and long (just a little thicker than a credit card, but about the same size—Power Card; get it?).

From the specifications, I learned that it's a forward-only-with-brakes ESC that operates on 4 to 12 volts (four to nine cells). The SCI Power Card 600 has these features:

- five FETs for forward and one for brakes;
- a Tamiya-style battery connector and bullet-style motor connectors;
- a set of adapters to convert the receiver plug for use with any of the popular radio systems;
- a built-in BEC;
- a unique, one-potentiometer (pot) pulse adjustment and a two-color LED pulse checker;
- a copper heat-sink plate that's an integral part of the case;

tom. The Power Card 600's FETs lie flat on the bottom of the case, and their heat-sink tabs are welded to the copper base plate, which dissipates heat and helps to carry the motor current. The rest of the innards are mounted on two printed-circuit (pc) boards, one lying next to the copper plate and the other right above it. The bottom pc board, which is clad in copper and has no holes, acts as a bus to carry the heavy current. The upper pc board contains the control circuitry and the parts that are needed for the BEC and the pulse-checker. The Power Card 600 is definitely different from typical ESCs, but it seems to be sturdy. Off to the "Scoping Out" lab to pump some current and take some readings!

### LAB LABOR

First, let's get this ESC operating properly. The 600 has only one adjustment pot (instead of the usual two), and its function

the throttle wide open and let the controller pump the amps. I didn't have to add an external heat sink because the FETs lie flat and are welded to the internal copper-clad plate that acts as a heat sink. I let the ESC cook for 15 minutes, after which the unit was moderately warm, but still well within safe operating limits.

#### DEAD-SHORT TEST

With the dead short across the motor wires, I jammed the pedal to the metal, watched the current jump to 49 amps (the limit of my lab supply) and let it run for 30 seconds. After that, the controller was hot enough to burn a blister on my pinky if I had been dumb enough to touch it for more than a fraction of a second. I removed the short and let the Power Card 600 cool; it was OK—no problems!

So it survived the lab abuse, but how would it fare in my Kyosho Sideways?

#### ON THE ROAD AGAIN...

Installation was easy because the Power Card 600 comes with a complete set of connectors installed. The battery wires are about the right length, but the motor leads are a little shorter than I like. Generally, I like to whack off the bullet-style motor connectors and hard-wire the motor, but the motor leads were too short for this. Instead, I dug out a set of bullet-tipped motor wires and soldered them to the motor.

The Sideways has lots of room on its top deck, so the 600's dimensions didn't present any installation problems.

The instruction sheet claims that the smooth, anodized-aluminum base plate doesn't stick well to servo tape and that it's best to hold the 600 in place with rubber bands. Nevertheless, I cleaned the bottom of the controller and the top plate of the Sideways with motor cleaner and tried the servo-tape-mounting method. No problem! In fact, the tape stuck better to the 600 than to the car's top plate. Then I added a battery and turned on the transmitter. The only adjustment required was a minor one to the transmitter throttle-trim knob.

My Sideways has a Slot Machine motor, and I installed a large pinion gear so that the car would rip up and down the street. I deliberately picked a tall gear to see whether I could overheat the Power Card 600.

During several runs, the 600 showed excellent acceleration, good top speed and fairly strong brakes that were able to produce rear-wheel-sliding, 180-degree

## SCI POWER CARD 600

#### DIMENSIONS:

Height ..... 0.30 inch  
Width ..... 1.62 inches  
Length ..... 2.53 inches  
Weight with wires ..... 2.0 ounces

#### TUNING:

Access to controls ..... Excellent  
Ease of adjustment ..... Fair

#### PRICE:

Sug. price ..... \$159  
Warranty ..... 6 months

#### ELECTRICAL:

##### (Manufacturer's specs)

Max voltage ..... 2 volts (9 cells)  
Min voltage ..... 4 volts (4 cells)

Max current ..... 600 amps  
Continuous current ..... 150 amps  
Resistance ..... Unlisted

#### TEST PARAMETERS:

Voltage ..... 6 volts  
Current ..... 12 amps

Voltage drop  
along length of wire ..... 0.13 volt

Voltage drop  
2 inches along wire ..... 0.10 volt

Calculated resistance  
(voltage drop ÷ current = resistance):  
Resistance  
to end of wires ..... 0.011 ohm  
Resistance  
2 inches along wires ..... 0.008 ohm  
BEC voltage, 6-cell pack ..... 5.96 volts

#### COMMENTS:

SCI of Austria has come to the USA with an entire line of exciting ESCs. The Power Card 600 has only one pot (neutral set point) to match it to the transmitter, but this is OK because I obtain full throttle by adjusting the neutral trim pot and playing with the transmitter throttle trim. The instructions are skimpy, but adequate for those with experience. For serious racing, the Tamiya bullet-style connectors must go! The 600 Power Card tested here has a lower "on" resistance than the 1,000 (lower is better). The 1,000 model has a 32-cell capacity; the 600 version has only a 9-cell capacity. Most of us run 6- or 7-cell packs, so the 600 Power Card is, in general, a better choice for us.

turns. On several occasions, I ran the car until the batteries died and the car stopped. The motor always stopped running before the steering died—never even a hint of a runaway. It seems that the built-in, low-battery-voltage, detection circuit really does take care of the runaway problem.

#### CONCLUSION

The SCI Power Card 600 is very thin, but it's longer and wider than most ESCs. It's thin because its FETs are mounted flat on the base plate. Because of this, the FET heat-sink tabs can be spot-welded to the copper base plate, which draws all the heat out through the base of the controller. Best of all, there's little heat buildup because heat is drawn into the chassis, which acts as a giant heat sink.

If you run a massive modified motor powered by an 8-cell SCE battery pack, you might consider putting silicone heat-sink compound on the bottom of the Power Card 600. It will act as a "thermal path" between the ESC and the aluminum chassis. If you do this, you won't be able to use servo-mounting tape to install the controller, but if you drill four holes in the

chassis you'll be able to mount the Power Card 600 with tie-wraps instead of mounting tape. Just remember the 600's dimensions, and make sure that you have enough room for it.

In many ways, the 600 SCI Power Card is a better performer than its big brother because its low-voltage FETs tend to have a lower "on" resistance than the 1,000's high-voltage FETs. If you never run more than seven cells, the 600 is your best choice; but if you're into high-voltage insane racing or high-voltage truck pulling, the 40V Power Card 1,000 would be more suitable.

This well-built controller seems able to survive a lot of abuse, so it should work well in any car, buggy, or truck that has room for it.

*\*Here's the address of the company featured in this article:  
SCI Corp. of America, P.O. Box 13099,  
Sarasota, FL 34278.*

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## SHOCK TECH

(Continued from page 58)

Unfortunately, there's no perfect setup when it comes to R/C suspension. The best way to learn is by trial and error. Find someone who has a car that works well and resembles yours, then copy his setup. Keep your equipment clean, and make sure that it doesn't bind. Regular shock maintenance is the best way to ensure shock longevity. And ask questions. Talk to people who have been involved with R/C racing. They can steer you in the right direction. Good luck, and happy landings! ■

## PIRATE M1

(Continued from page 30)

### BULLETPROOFING

The Pirate is a very good car right out of the box; but for those of you who must have the best of everything, there are several trick hop-up parts available. Cliff replaced the kit's chassis with a hard-anodized version that's made of 7075 aluminum. It's stiffer than the stock one, and it resists abrasion.

Because Cliff used the one-way drive system, he had to make a few more modifications.

(Continued on page 96)

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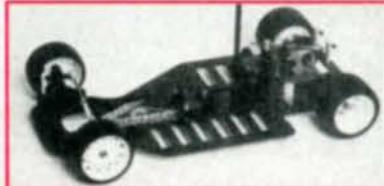
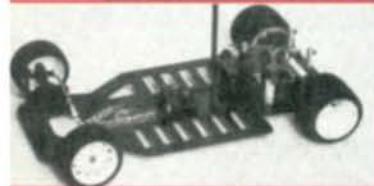
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# NITRO NEWS

## GET MOTO-VATED!

by JEFF BRONSTEIN

**T**HE MAJORITY of 1/8-scale race cars—both on- and off-road—use 3.5cc 2-stroke engines. Although these engines may have cosmetic differences, their internal designs are essentially the same. Most racing engines have Schnuerle porting, and they all have an ABC design

imposes strict export quotas on some manufacturers, and this has made certain Italian engines expensive and hard to find. Because of the new growth in gas racing, O.S. (based in Japan), is now regaining some ground with its RX-B and RX-R engines. Less

engine temperature by the "spit test," because less heat reaches the top of the heat sink. I have, on occasion, impressed my friends by carrying my car back to the pits by the heat sink. (Don't try this stunt at home, youngsters.)

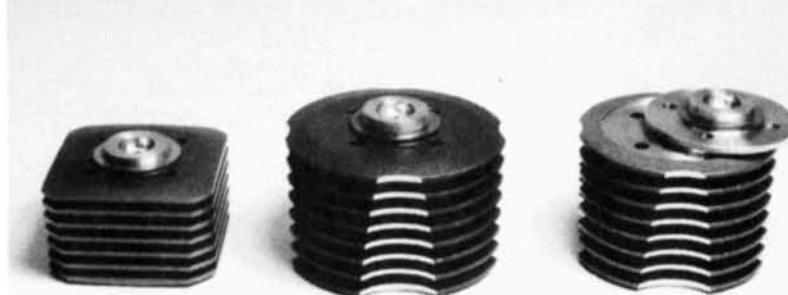
### CONE HEADS

One of the latest developments in 3.5cc 2-stroke engines is the "turbo," or "cone," glow plug. The turbo head and glow plug can increase power by as much as 15 percent. This glow plug doesn't fit standard engines; if you want to use it, you must replace the entire head with a two-piece unit. (You can order the turbo head for most NovaRossi and OPS engines.)

This turbo setup can literally overpower your car. The only other drawbacks are some tuning difficulties and the cost of the upgrade. Still, many racers prefer the standard head for more reliable—and affordable—performance.

Inside the engine, the crankshaft directs the fuel to the combustion chamber. Stock crankshafts usually have a straight orifice that runs down the middle of the shaft from the shaft valve to the crankcase. Many newer engines,

(Continued on page 94)



**Newer engines use round heads (center and right) that have greater cooling capabilities than the older, square heads (left). The new, two-piece NovaRossi "turbo" head (right) uses a conical glow plug.**

(they have aluminum pistons, and brass sleeves that are chrome-plated). Because all engines have the same basic design, it's sometimes difficult to understand why they have different performance characteristics and why their prices vary so widely. Before you blow a week's pay on a new 2-stroke speed dynamo, you should learn about the differences among engines and what they'll mean on the track.

There are only a handful of manufacturers who think that gas-car racing is popular enough to warrant producing high-performance engines. Most of them, not surprisingly, are in Europe, where gas racing is as popular as electric racing is in the U.S.

NovaRossi is one of the largest, most successful engine manufacturers. It produces three engine lines—NovaRossi, Rex and Top. Picco has also been a very popular engine manufacturer for many years, and it's now also importing and selling engines with its Genesis car. Picco also makes the potent S-Power P-5 engines for Berton, which manufactures Serpent cars.

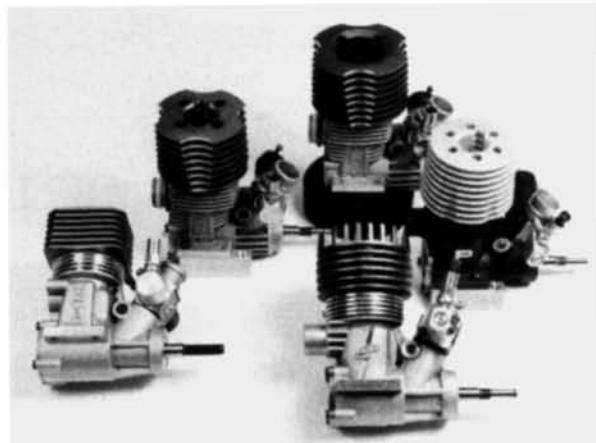
Unfortunately, the Italian government

predominant—but still widely respected—engines are also produced by several other manufacturers, including Bergonzoni, Enya, Irvine, Leo, Magnum, Mantua, OPS/Mondial and Royal.

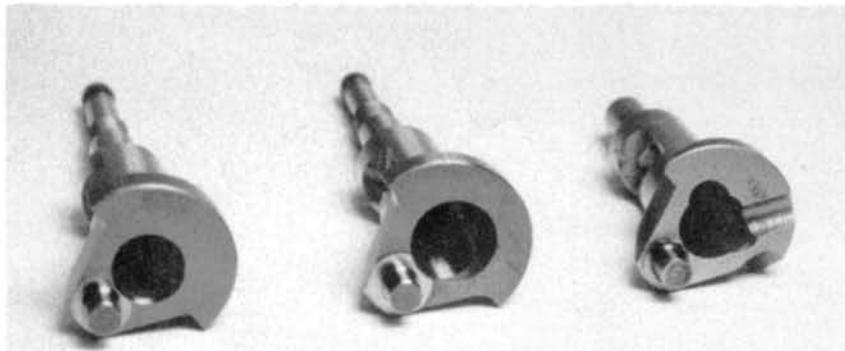
### HEAT-SINK HEADS

Some of the latest engine improvements are very simple. Many new engines use a much larger heat-sink head to keep them cooler during races.

NovaRossi engines now have eight-leaf heads, as opposed to their older, five-leaf units. Picco, S-Power and OPS have had excellent results with the larger heads. The larger heads, however, make it more difficult to test en-



**Some of the top (no pun intended) engines in R/C include the NovaRossi 2000, the Picco P-5, the Serpent S-Power, the NovaRossi Rex and the NovaRossi Top.**

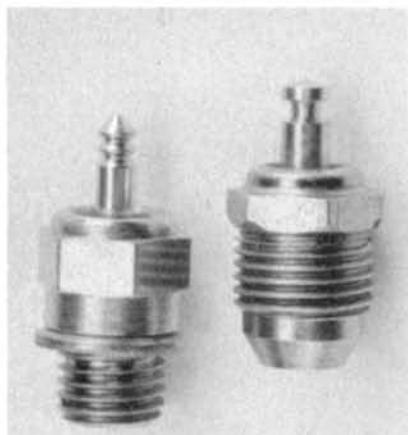


**Crankshafts can improve performance by increasing the shaft-valve timing, or by increasing fuel flow to the bypass and intake ports.**

however, have one or more grooves or flutes that run along the inside of the shaft and onto the counterweight to "sling" the fuel into the bypass and intake ports. These cranks are also referred to as "turbo" cranks. The turbo crank's tapered leading and trailing edges help to reduce drag and improve fuel flow.

#### CONNECTING-ROD CONCERNS

The engine component that's most likely to fail is the connecting rod between the crankshaft pin and the piston wristpin. The heat produced by a lean run may wear the brass bushings at either end of the rod; extremely high rpm, in the case of a "runaway," may stretch or distort it. If a rod explodes inside the engine, it usually takes the piston, the sleeve and, sometimes, the engine case with it. Some manufacturers have trimmed their rods to further reduce drag inside the engine. Although this may improve performance minimally, it may weaken the rods. For increased reliability, some manufacturers make after-market titanium rods.



**A turbo glow plug (right) is much different from a standard one. Notice the tapered base that can be sealed tightly without a washer.**

#### BACKPLATE BASICS

The engine's backplate is much more than a dirt cover. Manufacturers try to reduce crankcase volume by extending the backplate into the case, and newer backplates also keep the rod aligned with the crankshaft pin. Some S-Power engines and Paris modified engines come with hard-anodized backplate covers that make the inside surface very hard and smooth. The rod may scratch the backplate occasionally, but it should never gouge it. Damage to the inside cover is usually the result of too much end play in the crankshaft, which causes it to nick the surface of the backplate.

#### PORTING AND TIMING

The principal difference among most engines is in the cylinder sleeve porting and timing. Porting and timing determine efficiency. Four, five, or even eight ports in cylinder sleeves direct and correct the fuel flow and the scavenging of exhaust. Although more ports help to scavenge the fuel, they're not necessarily more efficient. More fuel may actually pass through the combustion chamber and out the exhaust than is burned.

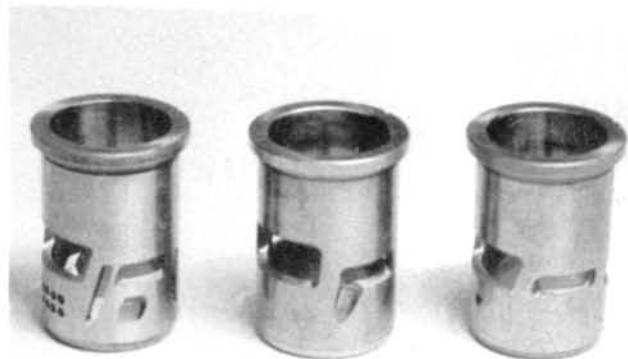
Timing is also critical. The exhaust port must open to allow spent fuel to escape before intake and bypass ports flood the chamber with new fuel and air. Engines that have more than six ports

generally have more refined, directional porting and timing. Additional ports provide quicker fuel/exhaust exchange and better low- and mid-range performance.

#### PREMIUM POWER

Because they require additional labor, modified engines are more expensive. Engine modification can be a tricky balancing act; improving one area invariably impairs another. If the bypass duration is increased, the case compression is diminished. If the shaft valve's timing is increased, it may open too early, causing the engine to backfire.

Finally, high-performance racing engines are extremely expensive, and they're really necessary only for national races. In most cases, novice racers who use killer engines won't reach the finish line any sooner; they'll only hit the boards (and other cars) harder. Also, highly modi-



**Here are three cylinder sleeves with different porting and timing (number of ports and their placement).**

fied engines tend to be more finicky about settings, and they require more maintenance. A less expensive stock engine—or one that has been minimally modified—will make the car easier to drive and can result in higher finishing positions.

When you have enough experience to handle extra power, you should invest in a modified engine for use at regional and national events only. (Most of you won't listen to this little piece of advice, will you?) In any case, take all the variables into consideration before you buy a racing engine. Don't buy more than you need, and don't accept less than you deserve. ■

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### PIRATE M1

(Continued from page 86)

The stock nylon helical diff gears can't survive the brute force delivered through the one-way diff, so Cliff replaced them with hardened-steel gears. Because the rear end receives most of the power, he also added an aluminum diff case and hardened-steel planetary gears.

After a few hours, the motor's power caused the pins in the rear nylon diff case to spread. With the aluminum diff case, the pins are held rigidly, and six ball bearings support the output shafts for ultra-precise gear mesh.

To complete this heavy-duty rear end, Cliff also replaced the kit's rear dogbones with front universal shafts, but he had to trim a slight amount of material from the end of the drive shaft for them to fit.

### PIRATE DIET

Cliff also removed some weight from the Pirate. He replaced much of the steel hardware with either aluminum or nylon, and he replaced the stock aluminum radio plate with a graphite one from OFNA that's stiffer and much lighter. Notice that the throttle servo is mounted with tie-wraps and the steering servo is mounted with nylon nuts—no wasted weight here! Cliff also replaced the steering linkage with RCPS\* titanium tie rods and RPM\* rod ends.

### SMOOTH RIDE

In the suspension department, Cliff made a few of his own modifications. First, he designed new fiberglass shock towers. He used the hard-coated Pirate shocks, but he replaced

the pistons and the piston rods. By using the rods from Associated's\* shocks, Cliff was able to extend the suspension travel by  $\frac{1}{2}$  inch in the front and  $\frac{1}{4}$  inch in the rear. He made his own pistons of Teflon for smooth, precise damping and drilled them twice with an .052 bit, and he mixed 30WT and 40WT oil for a "35" WT blend.

### RADIO

To guide this nitro missile to the head of the pack, Cliff relied on the Airtronics\* Caliber transmitter and a Novak\* NER-3FM receiver. For ultra-rapid steering, Airtronics' no. 94151 servo fits the bill perfectly; for throttle and brakes, Cliff used the Airtronics no. 94737 servo. His radio system is powered by four 600mAh cells.

(Continued on page 134)

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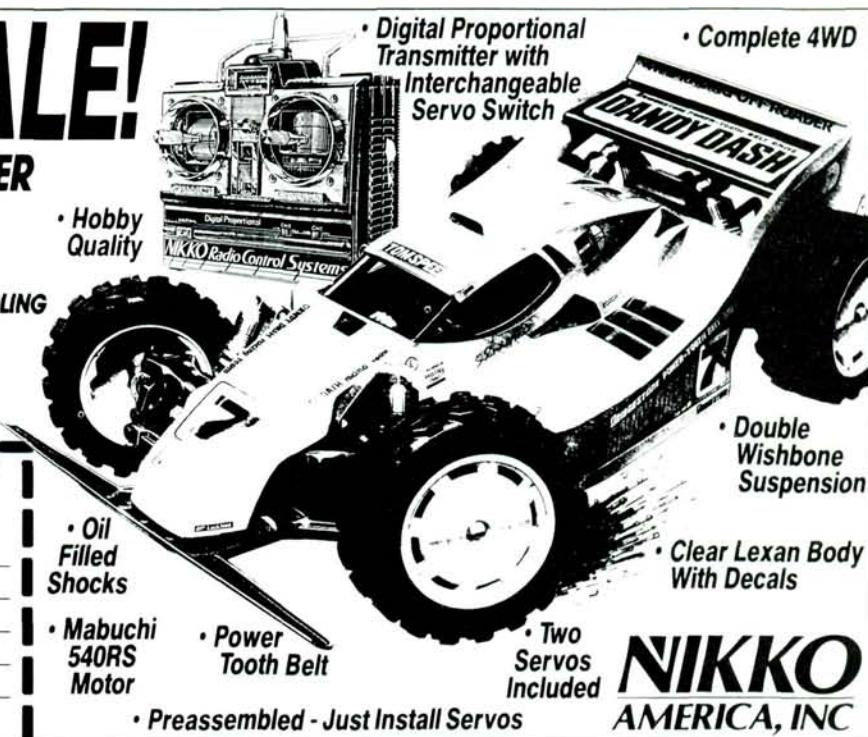
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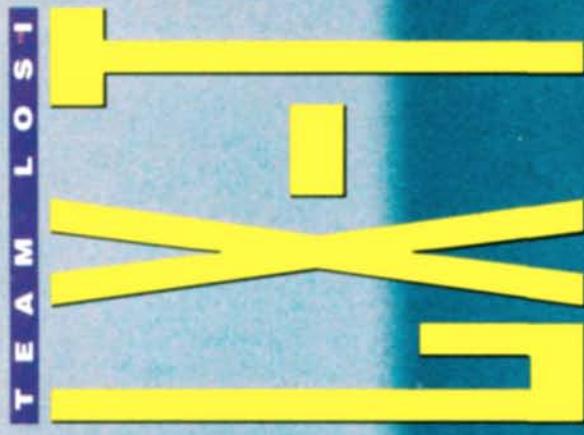
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# Losi does your Dirty!



by JOHN HUBER

**T**HE JR-XT WAS Team Losi's\* first R/C racing truck. Before it was released back in '89, racers made their own trucks by slapping big tires on buggies. After almost four years, however, truck racing has become one of the hottest forms of competition, and the JR-XT has been outclassed by faster, more advanced machines.

For months, the Losi team has been experimenting with new components, and now the LX-T is ready for fame. If their

first competitive outing was any sign of what's to come, the Losi truck is sure to be excited. At this year's Florida Winter Champs, seven of the 10 trucks in the A-Main were LX-Ts. Not bad for a debut!

Losi has developed an innovative plastic called "Stiffzell" (that's exactly what it is), and it's used on the front and rear arms, the caster blocks, the steering blocks and the rear hub carriers. With this material and its computer-aided design system, Losi produces some of the

lightest, strongest components Losi designed caster and steering blocks for the new front and rear arms. The beefy steering blocks should stand up to serious abuse. I didn't have any bump-steer problems with this new front end.

LX-T has new arms in the front and new, extra-wide H-arms in the rear. New, longer sliders span the gap between the axles and the tranny.

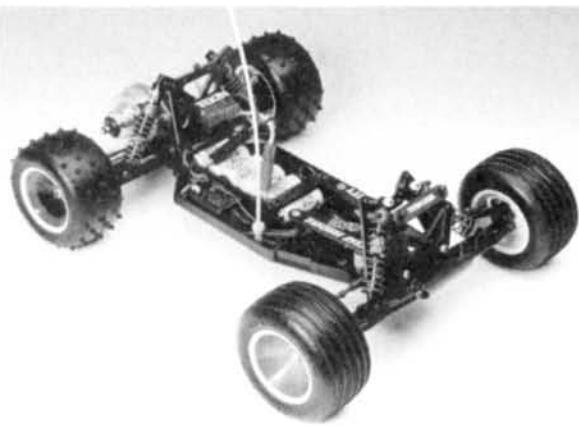
## THE GOODIES

The LX-T uses the same "Slim Line" molded chassis as the JRX-Pro SE—an extremely light, tough and, best of all, inexpensive chassis. Also included are Losi's Hard Body shocks with Teflon pistons and

(Continued on page 103)

PHOTOS BY JOHN HUBER





(Continued from page 99)

The LX-T's transmission has all the Pro-SE's latest refinements, e.g., the low-friction gear set and the slipper clutch. The HydraDrive unit was supposed to be included with the kit, but as fate would have it, production delays prevented this. Don't fret, though, because the LX-T comes with a special gear cover that will accept the HydraDrive unit when it's available. Of course, the kit includes ball bearings for the tranny, wheels and axles.

#### WHEEL DEALS

The new wheels that are included with this kit are truly unique. They're similar to other dish rims, but the smooth dish side is on the *inside* of the wheel. A clear dirt shield that covers the wheels' ribs is used on the *outside* of the rim; this setup makes it virtually impossible for dirt to accumulate in the rims. It also adds a new dimension to painting options; now, you can also paint the rims—even with some kind of spin-art technique.

Tires are one of Losi's best products, and it has a bunch for the truck. Standard ribs up front and 6-row spikes for the rear are included with the kit, but there are nine other treads from which to choose, including their new Diamond Series full-radius ribs and step-pins.

#### BODY

The LX-T is similar to Associated's RC10T in that the body sits very low on the chassis. The tallest parts of the chassis are the shock towers, so the body was designed to fit over them. A blower on the hood provides clearance for the front shock tower, and rear number plates provide shock clearance in the rear so that light doesn't stream from underneath the body, as it did on earlier trucks. A special plastic mount that strengthens the body where it mounts on the



tower with foam tape. Again, you can use the Goo, but an ESC isn't usually subjected to the abuse that a servo is.

#### TESTIN' TIME AGAIN

For the truck's first test run, I headed to the '92 Northeast Truck Show and raced the truck in the Stock Class (the first time I've ever raced stock). I used the stock Red springs with 40WT oil in the rear and 30WT in the front. Now, I wish I could say that I went out there and kicked everyone's butt with the new truck, but the truth is that I got creamed. Although the truck handled well, my knowledge of stock motors was no match for the more experienced stock racers.

I had better luck on my second outing, though. I went to my local track and raced modified. I hadn't been to the track in a while, so I practiced on its new layout with the stock motor still in the truck. For the race, I installed the Trinity motor and this time, I qualified 6th in the A-Main. I got lucky in the first turn, and I made my way

shock tower is a nice touch.

I received a painted body from Losi. I used a grill decal (narrowed) from a Junior T and some other Losi decals, but I was disappointed to learn that they have no plans to make LX-T decals.

#### RADIO SYSTEM

I used my old, beat-on Futaba\* PCM to test the truck. I've had it so long that it fits my hand like a glove, but it still provides rock-solid contact with my car. For the steering department, however,

I had to go with the KO\* 1001. It simply has the most power and speed of any servo I've ever seen. Losi's molded chassis even has servo-alignment marks right on the chassis, so mounting it is a cinch.

To mount the servo, I used double-sided foam tape, but for extra security, I ran a bead of Pacer\* Zap A Dap A Goo around the servo and let it dry overnight. The servo is mounted as solidly as possible, but I can still peel off the glue and take the servo out if it breaks. Give it a try, you won't be sorry!

For power, I used Trinity's\* P-170s (a matched pack) and a Championship Series 15-turn quad Armageddon motor (designed for SCR cells). To deliver the power, I used a Tekin\* 411P speed controller that I mounted on the shock

tower with foam tape. Again, you can use the Goo, but an ESC isn't usually subjected to the abuse that a servo is.

**Manufacturer** ..... Team Losi  
**Type** ..... 2WD truck  
**Scale** ..... 1/10  
**Price** ..... \$329.95

#### DIMENSIONS:

**Overall Length** ..... 16 inches  
**Width** ..... 12 inches  
**Wheelbase** ..... 11.5 inches  
**Front Track** ..... 10.25 inches  
**Rear Track** ..... 10 inches

#### WEIGHT:

**Gross (with battery)** ..... 4 pounds, 1.12 ounces

#### BODY:

**Type** ..... Stadium truck  
**Material** ..... Polycarbonate

#### CHASSIS:

**Type** ..... Molded  
**Material** ..... Matrix-fiber resin

#### DRIVE TRAIN:

**Primary** ..... Pinion/spur  
**Transmission** ..... Gear reduction (2.18:1)  
**Differentials** ..... Ball  
**Bearings/Bushings** ..... Ball bearings

#### SUSPENSION (f/r):

**Type** ..... Single A-arm/upper camber link  
**Damping** ..... Oil-filled, coil-over shocks

#### WHEELS: (f/r)

**Type** ..... One-piece with a plastic shield  
**Dimensions (DxW)** ..... 2.20x2 inches

#### TIRES:

**Front** ..... Losi ribbed  
**Rear** ..... Losi 6-row spikes

#### ELECTRICS:

**Motor** ..... 05/540\*  
**Battery** ..... 6 or 7 cells\*  
**Speed Controller** ..... Electronic\*

#### OPTIONS AS TESTED:

Futaba PCM radio system, KO 1001 servo, Tekin 411P ESC, Trinity pushed Panasonic P-170 battery pack, Trinity 15-quad Armageddon motor.

#### COMMENTS:

Losi is back in a major way with its new LX-T. Computer-designed parts made of cutting-edge material will keep the truck on the track even after harsh encounters with the boards. The new rims are great!

\* not included

**ROCKET CITY** **R/C**

SPECIALTIES

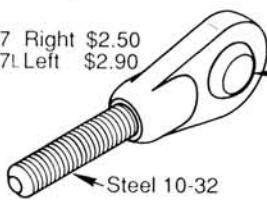
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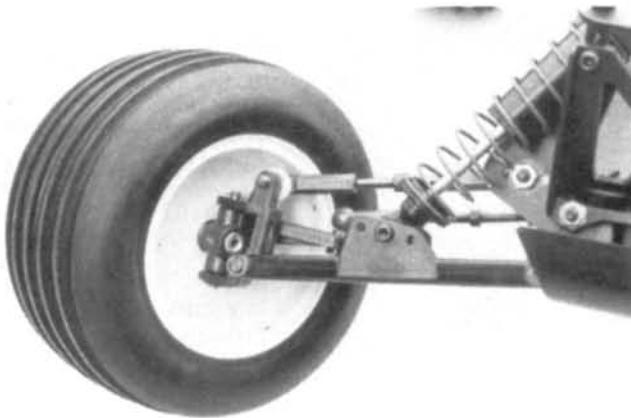


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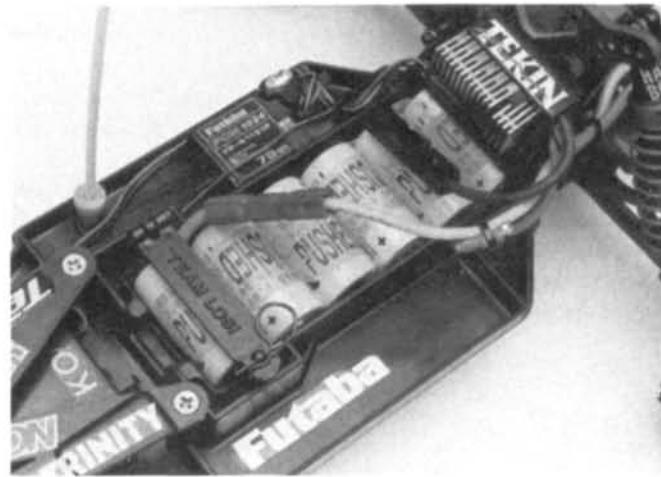
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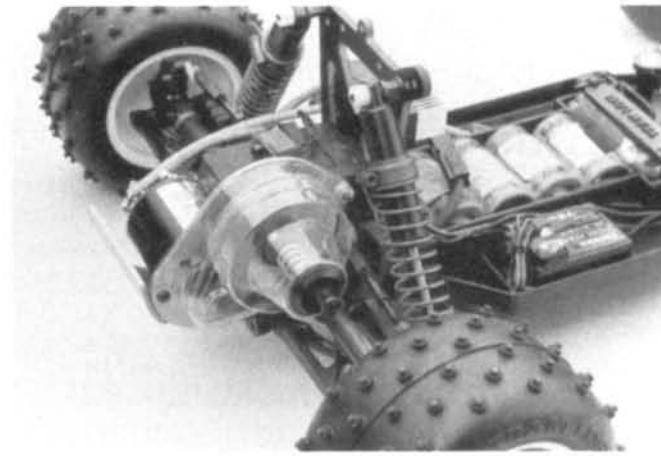
**TEAM LOSI LX-T**



**The new LX-T**  
uses extra-long  
suspension arms  
made of Losi's  
"Stiffezell"  
material. Notice  
the new front  
caster and  
steering blocks.



**Losi's new,**  
**narrow chassis**  
**houses all the**  
**radio gear with**  
**ease. A 6-cell**  
**pack of Trinity P-**  
**170s works well**  
**with the 15-quad**  
**Armageddon**  
**motor.**



**The kit includes a**  
**gear cover that**  
**will let you drop**  
**Losi's new**  
**HydraDrive unit**  
**right in when it's**  
**available. Notice**  
**that I removed the**  
**old rear body**  
**mount from the**  
**tranny case.**

through traffic and into the second spot. I never caught the first place truck (another LX-T), but I kept second place until the end.

The LX-T is very well designed. The parts are super beefy, and they fit together with little effort. The directions are well-organized, so even first-timers will find it easy to build. On the track, the new slipper clutch worked well, although I'm very curious to see what kind of improvement the HydraDrive will make. Either way, this truck will make the fighting fierce this year for both Traxxas and Associated. Watch out!

\*Here are the addresses of the companies mentioned in this article:

**Team Losi**, 13848 Magnolia Ave., Chino, CA 91710.  
**Futaba Corp. of America**, 4 Studebaker, Irvine, CA 92718.

**KO Propo**; distributed by Global Hobby Distributors, 10725 Ellis Ave., Fountain Valley, CA 92728.  
**Pacer Technology**, 9420 Santa Anita Ave., Rancho Cucamonga, CA 91730.

**Trinity Products Inc.**, 1901 E. Linden Ave. #8, Linden, NJ 07036.

**Tekin Electronics**, 970 Calle Negocio, San Clemente, CA 92672.

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RADIO CONTROL CAR ACTION

# RACER NEWS

WORLD CLASS RACING

**T**im Vickridge, president of the West Coast Model Rally Club in Western Australia, sent us a report of the '92 Australian Off-Road Nats, which were held in April.

In the hotly contested **4WD Modified Class** (the most popular class Down Under), TQer **Gavin Reynolds** piloted his Yokomo Works '91 car to victory over a vast field of competitors. **Craig Mazik**, who also drove a Works car, TQ'd and won the **4WD Stock Class**. In the **4WD Production Class**, which only allowed the use of 540 motors to keep racing within the financial grasp of new racers, **Simon Sander** drove his Yokomo Dogfighter to victory.



In the **2WD Modified Class**, running against Associated, Traxxas and Schumacher

cars, **David Crowe** stole the TQ position and the checkered flag with his Losi

JRX-Pro SE. In the **Stock Class**, TQer **Brendon Coleman** and his Traxxas TRX-1 led all the way from start to finish.

\*\*\*

In the first printing of NORRCA's '92 rule book there was an error in the legal weight specification given for off-road racing trucks in all classes. The proper weight is 3 pounds, 12 ounces. Also, batteries with ratings higher than 1400mAh are only legal in expert modified classes, regardless of scale.

At the **SCORE Off-Road Race**, which was recently held at the Convention Center in Anaheim, CA, **Scott Roberts**

## CAPACITOR UPDATE

**A**bout Stan VanDuff's "Capacitor Savvy" article (July '92), **Team Novak's Tyree Phillips** had this to say: installing a **2.2-microfarad 2V tantalum capacitor** in any Novak 410 series high-frequency, regenerative ESC will distort the PWM waveform and reduce the unit's regenerative capabilities as well as its efficiency. Tantalum capacitors have a very low ESR (Equivalent Series Resistance), so they tend to absorb all voltage spikes (common with motors) and are eventually destroyed.



Phillips states that only **0.1-microfarad 50V ceramic capacitors** should be used in high-frequency Novak ESCs, including the 610-RV unit with reverse.

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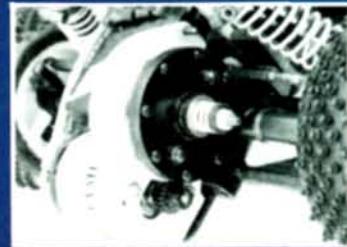
**132**  
**Speed Shop**



# RACER NEWS

## WHERE'S THE HYDRA DRIVE?

If you own a Losi vehicle, you've probably been asking that question for a while. For months, you've read about this little gadget in these pages and, understandably, you want one of your own as soon as possible. Well, we have good news—the Losi Hydra Drive should be available by the time you read this! Apparently, for this complex unit to work properly, its parts must be molded *perfectly*—a time-consuming, expensive process. As of June 1, there were approximately 50 production units in existence, and all had been turned over to Team Losi drivers for evaluation. (The earlier versions used by Losi drivers were hand-built prototypes.) If all goes well with these units, Losi will go into full production, and this means that the Hydra Drive will soon be in a hobby shop near you.



## NORRCA SCHEDULE

August 1	5th Annual Kyosho West Coast Truck Champs. 0-N-4 Hobbies, Visalia, CA
August 15	Northern California Off-Road Series No. 5, AMS Raceway, Sparks, NV
August 16	Southern California On-Road Course Series No. 2, Ranch Pit Shop, Pomona, CA
August 21-23	<b>Paved Oval Nationals</b> , Megatrax, Browns Mills, NJ
August 29-30	Regatta On-Road Oval, Charleston, WV
September 5-6	<b>New England Carpet Oval Champs</b> , Foxhill Raceway, Wakefield, MA
September 12	Division 1 Dirt-Oval Championship, Fast Lane, Saugus, CA
September 26	Northern California Series No. 6, Frogtown Raceway, Angels Camp, CA
September 26-27	Division 8 Off-Road Championship, Cherryville Raceway, Cherryville, NC
September 27	Southern California On-Road Course Series No. 3, Yorba Linda Speedway, Yorba Linda, CA
October 3	Division 8 Dirt Oval Championship, Coopers R/C, Chatham, VA
October 3-4	<b>Paved Roadcourse Nationals</b> , Yorba Linda Speedway, Yorba Linda, CA
October 10	Monster Mash, RCHR, Costa Mesa, CA
October 14-18	<b>Thunderdrome</b> , Dominguez Hills, CA
October 24	Northern California Off-Road Series No. 7, Cycle Art Raceway, Fresno, CA
November 22	Northern California Off-Road Series No. 8, Hobby Haven, Livermore, CA
November 14-15	<b>Off-Road State Champs</b> , Fast Lane, Saugus, CA
December 5-6	Division 1 Off-Road Championship, M 'n' M Hobbies, Corona, CA

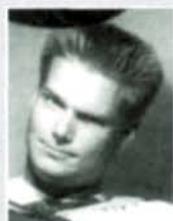
For more information, contact NORRCA at (714) 981-9641

ran away with the **Modified Monster Truck A-Main** and TQ'd in and won the heavily-contested **2WD Modified Class**. Roberts, who's sponsored by Peak Performance, also bested a field of more than 100 drivers in the 2WD Modified Class at the '92 Reedy Race of Champions. Watch out for him!

More late-breaking news—at the '92 **ROAR Oval Nats**, which were held May 22 and 23 at Paul Covington's PC Hobbies Raceway in King, NC, **Ernie Bucci** won the **Modified National Champs**. He drove a TRC/Composite Craft Lynx II SS equipped with a Trinity motor and batteries and Novak electronics.

## '92 1/12-Scale World Champs Warm-Up

Just in—the results of the '92 **1/12-Scale World Champs Warm-Up Race**, which was held in Grand Rapids, MI, on May 16 and 17. **Joel "Magic" Johnson** defeated two-time world champ **Tony Neisinger** in a battle that ran down to the wire. After three Mains, Johnson defeated TQer Neisinger by just 2/10 second. **Mike Blackstock** finished third.





*Gas racing isn't just for seasoned experts!*

by FRANK MASI

I WAS apprehensive when I boarded the plane at New York's LaGuardia Airport, and it wasn't because John Huber had smuggled six cans of highly flammable motor spray onto the plane. No, I was nervous about the reports of riots in Los Angeles and Atlanta that had been broadcast live the night before our trip and earlier that day. We were traveling to the Georgia Hobbies Raceway, which is just 20 minutes south of downtown Atlanta—the site of the riots—for this year's Kyosho Southeast Gas Off-Road Championship. My fears, however, were unfounded. Except for Jammin' Jay Halsey's bungee jump, I didn't see anything out of the ordinary during my entire visit to the Peach State. I did, however, see some of the most exciting racing I'd ever witnessed—nitro-style!

#### A SUPER SERIES

Organized by the "big man," Bill Jeric of Kyosho, the Southeast Gas Off-Road Championship was the kickoff event of the '92 Kyosho Gas Challenge Series—the only nationally recognized series for 1/8-scale gas off-road buggies and 1/10-scale gas race trucks. This year, it consists of the Georgia race, the Kyosho World Challenge at SEMRROC's famous "worlds" track in Detroit,

**KYOSHO/ Radio Control  
CAR ACTION**



**SOUTHEAST**

# Gas Off-Road Ch



*Pitmen (and women) watch for the "cars-down/hands-up" signal from Thawley. Communication between drivers and their pitmen is critical, and many racers used two-way radios.*

## **methanol mayhem!**

These  $\frac{1}{8}$ -scale monsters can really throw up the dust!

# **ampionships**



## OFF-ROAD CHAMPIONSHIPS

MI, and a third race that will be held on the West Coast. (The details haven't been determined yet.)

If you think that gas racing is a small, unpopular segment of R/C, think again! At last year's World

Challenge, two of the biggest names in racing—Cliff Lett and Joel Johnson—went head-to-head for most of the 30-minute A-Main. (With his Pirate car, Lett edged out the Magic Man's Kyosho Turbo Burns.) Since then, many of the nation's top guns have discovered that nitro is fun. Some recent recruits include Team Losi's Jack Johnson, Gary Kyes and Halsey as well as Team Kyosho's Kris Moore. All of them turned out for the Southeast Champs.

### THE HEAVY HARDWARE

Team Kyosho banked heavily on its new Inferno car which looks mean enough to scare the competition! To create it, the Kyosho engineers did more than just rework the Burns; they beefed up weak areas

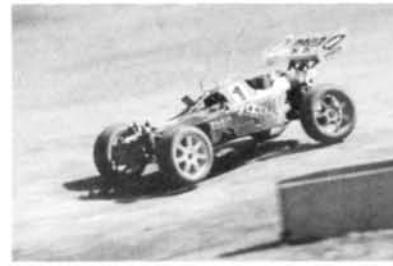


**Team Kyosho proved that the Inferno could perform; Infernos finished in 1st, 2nd, 4th, 6th and 9th places overall.**

and redesigned much of the car to make it easier to maintain and more adjustable.

The Pirate team fielded a new version of its car called the "Super Pirate." It has such refinements as a one-way center differential, a dual disk-brake system, improved gears and hard-coated shocks. Although Lett couldn't attend this race, Halsey "rented" Lett's Pirate to make his gas debut.

OFNA Racing introduced its new Tempo car, which is similar to the Pirate car, but is reported to be less expensive. A few racers used Mugen Super Sports and the new '92 Super Sports, while others drove BMT 911 off-road racers. Unlike most 1/8-scale off-road cars, the radical 911 uses a belt drive



and ball diffs to transfer power to its wheels—much like the setup used in 1/10-scale electric 4WD buggies.

### TRUCKIN'

The popularity of 1/10-scale gas trucks

has grown, and the once simple, entry-level equipment has become as sophisticated as that used for large gas buggies. Most of the trucks in this class started as Kyosho Outlaw Rampages. Some, such as those used by Kyes and Johnson, had full Losi LX-T front suspensions; others, such as the one used by Moore, retained most of their stock components.

At last year's World Challenge, Kunio "Kooney" Dudgeon "wowed" everyone with his wild Associated RC10T gas truck. At the Gas Champs, he unveiled his latest project—the Dudgeon Racing RC10T. It's an almost completely scratch-built racing truck that's based *loosely* on his first conversion. Sporting a hand-built gearbox and chassis, this O.S.-powered truck was one of the fastest on the track. (Look for an in-depth article on it in an upcoming issue.)

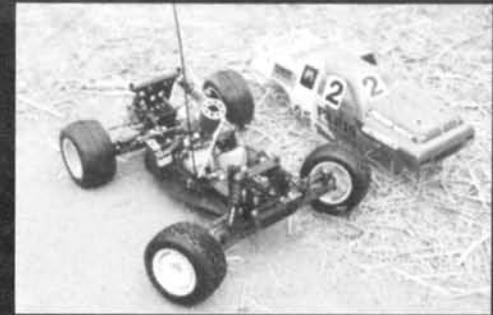
The Losi LX-T is one of the most popular 1/10-scale electric racing trucks, but have you ever wondered how it would fare if it were powered by gas? Apparently, Ron and Holli Bechard did, and their answer blew us all away! Ron built a custom LX-T with an O.S. CZ-R .12 engine for his wife Holli. (See the sidebar.) Does it work?

Check out the winners' chart; Holli qualified 2nd behind Jack Johnson!

The O.S. CZ-R .12 engine dominated the Truck Class, and it really moved these 1/10-scale terror trucks. In an attempt to take horsepower a step further, many drivers used CZ-Rs that had been modified by none other than Ron Paris. I'd have to say that these trucks were as fast, if not faster, than similar electrics equipped with hot modified motors.

### QUALIFYING

If I'm not mistaken, we participate in races for the track time. Think about this: in electric races, qualifying heats and Mains



## COMBUSTION CONVERSION

Someone should have told Ron and Holli Bechard that the Losi LX-T racing truck is supposed to be powered by an electric motor—not a gas engine! I've seen many electric-to-nitro conversions in my time. Some looked promising, but lacked any semblance of performance; others looked like something Rube Goldberg might have developed in a basement laboratory, but they worked great. The Bechards' custom LX-T fits neither category. In fact, it seems like something that the Losi boys themselves might have created.



To accommodate the Paris-modified O.S. CZ-R .12 engine, Ron reversed the Losi gearbox and made custom mounting brackets for the disk-brake system. He also installed a Paris tuned pipe to route the fumes out and away from the LX-T's chassis. The suspension—front and rear—and the tranny's internal components are box-stock Losi gear, and a Jammin' Lambo Light body tops the truck off.

To prove that this truck can perform even better than it looks, Holli, who does all the driving, put her LX-T in the 2nd-place qualifying position. She was right behind Jumpin' Jack Johnson and ahead of such dignitaries as Gary Kyes and Kris Moore! Gloria Steinem would have been proud!

# OFF-ROAD CHAMPIONSHIPS

last only 4 minutes each; three heats and one Main equate to about 16 minutes of track time in each class—not counting practice runs. Not much time, is it? Well, a typical gas race has 10-minute qualifiers—with three heats and one Main, which can last up to 30 minutes, that's 40 minutes to an hour of racing! Longer runs also mean that you have much more time to make up lost ground in the event of a mishap.

In the Truck Class, which ran 8-minute heats, the battle for the TQ position was between teammates Johnson and Kyes. Kyes had set the fast time early on, but Johnson shattered it by posting a 20-lap run in 8:01.29. The big surprise came in round three, when Bechard crossed



**Kyosho's Tom Grogg frantically signals Jack Johnson's pitman to let him know that Jack is coming in to refuel.**

the line on her 19th lap with time to spare. At that point, Johnson had pulled off the only 20-lap run, and it looked as if Bechard would make one, too. Unfortunately, her LX-T flamed out just short of the finish line. She finished with 19 laps in 7:54.63, which was fast enough to move her into 2nd place. After four

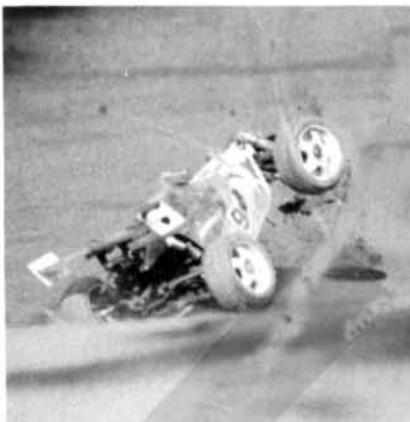
rounds, it was Johnson on the pole, with Bechard in 2nd. Kyes was in 3rd, followed by Rich Boomsma, who drove a Dudgeon RC10T, and Moore.

One-eighth-scale buggies must be seen to be believed! They handle like their 1/10-scale electric counterparts, but they achieve unbelievable speeds. This, combined with the sound of their engines, makes for extremely exciting R/C action.

With a few months of gas-racing experience under his belt, Johnson seemed to be the one to beat in the Buggy Class. No one bothered to tell Moore about this, however, and in his very first gas race ever, he tore up the track. He and Johnson were no more than 8 feet apart during the entire first round. (The control required to pilot one of the se

machines is astounding; to be able to race head-to-head at speeds of more than 50mph is amazing!) Moore won the heat with 28 laps in 10:13.51.

Johnson wasn't about to take a back seat, however. In the fourth round, he posted another 28-lap run in 10:10.09, and it was fast enough to bump Moore down to 2nd place. Halsey moved into 3rd with another 28-lap run in the fourth



round. (He was the only driver besides Moore and Johnson to do so.) Kyes put his Inferno into 4th place, followed by Scott Parkes and Jeric.

## MAIN EVENTS

The Truck Class A-Main was...err...well, it was full of sur-

### 1/8-SCALE 4WD BUGGY

Fin.	Qual.	Name	Chassis	Engine	Pipe	Fuel
1	1	Jack Johnson	Kyosho Inferno	Paris O.S.	Paris	Gary's Thai Juice 10%
2	4	Gary Kyes	Kyosho Inferno	O.S.	Paris	Gary's Thai Juice 10%
3	5	Scott Parkes	Kyosho Turbo Burns	O.S. EXB	Ron Paris	Blue Thunder
4	6	Bill Jeric	Kyosho Inferno	O.S. RX-B	Paris AL650	Cool Power 15%
5	9	John Adams	Pirate M1	Paris Picco	Paris AL 650	Blue Thunder
6	2	Kris Moore	Kyosho Inferno	O.S. RXB	Pris	15%
7	10	Ron Bechard	Tempo	Paris Picco	Paris AL650	O'Donnell 20%
8	3	Jay Halsey	Pirate M1	Paris Picco	Paris	O'Donnell 20%
9	8	Greg Coan	Kyosho Inferno	Paris Rex	Serpent	Sidewinder 25%
10	7	Anders Johansson	Pirate M1	JP Top Buggy	NovaRossi 020	Blue Thunder

### 1/10-SCALE TRUCK

Fin.	Qual.	Name	Chassis	Engine	Pipe	Fuel
1	7	Ruffy Rios	C.Craft/Kyosho Rampage	O.S. 12	ADC/Comp. Craft	Blue Thunder
2	3	Gary Kyes	Kyosho Rampage	O.S.	Paris	Gary's Thai Juice 10%
3	9	Brian Barbo	Kyosho Rampage	O.S. CZ-R	n/a	Cool Power 25%
4	1	Jack Johnson	Kyosho Rampage	Paris O.S.	Paris	Gary's Thai Juice 10%
5	5	Kris Moore	Kyosho Rampage	O.S. CZ-R	Stock	25%
6	6	Kevin Hyatt	DuraTrax Ultima Pro	O.S. CZ-R	DuraTrax	Omega 15%
7	2	Holli Bechard	Team Losi LX-T	Paris CZ-R	Paris	Blue Thunder
8	4	Rich Boomsma	Dudgeon RC10T	O.S. CZ-R	.21 Marine	Omega 15%
9	8	Kunio Dudgeon	Dudgeon RC10T	O.S. CZ-R	Stinger 4WD	Omega 15%
10	10	Dave Sproul	Kyosho Outlaw Rampage	O.S. CZ-R	DuraTrax	Omega 25%



**Bill Jeric was all smiles after an impressive 4th-place finish in the grueling 30-minute buggy A-Main. Although Gary Kyes finished 2nd, he doesn't seem very happy. (Maybe his deluxe apron is tied too tightly?)**

prises. At the sound of the gun, all the trucks roared toward the first turn. All, that is, except Johnson's. Apparently, his pitman had trouble starting the engine. With Johnson out, the battle for 1st escalated between Bechard, Moore and Ruffy



**John Thawley was on hand to provide his usual colorful racing commentary.**

Rios. Bechard made a hasty exit with mechanical problems just seven laps into the race. (What a shame; she was dialed!) Moore seemed the sure-fire winner, but his truck flamed out and had to be transported back to pit lane and restarted. This cost precious time. Rios led all the way to the checkered flag with a smooth, conservative run. Kyes, who was never more than a lap behind the leader, crossed the line in 2nd, followed by Brian Barbo and Johnson. Moore also got back into the swing of things and finished in 5th.

The Buggy A-Main was 30 minutes long! Every driver took care not to push his car too hard; it was a long Main, and finishing was more important than just going fast. At the start, Johnson (who made sure his Inferno was running this time) shot out to the lead, with Moore and Halsey in tow. Halsey, who tried to use his patented "tail-out" driving style to reel Johnson in, pushed too hard, and his Pirate (actually, it was Lett's Pirate) paid the price. About 20 minutes into the race, he dropped out with 59 laps. John-

son, whose Paris O.S. RX-B-powered Inferno worked flawlessly, ran away and hid. He finished with 80 laps—four laps ahead of Kyes' 2nd-place Inferno.

The real battle was for 3rd. Parkes held off Jeric's late charge. Another minute, and Jeric might have had 3rd instead of 4th! Horizon's "Chopper Ace," John Adams, who proved he could drive his Pirate as well as fly helicopters, made a respectable 5th-place finish. He was followed by Moore's Inferno.

#### PEACHES AND PEANUTS

Wow!—what a weekend. The weather was perfect. The cars were loud and fast. What more could a race fan ask for? Gas racing is much larger than it was a few years ago, and it's still growing. The cars and trucks are durable, and with all the advancements that have been made in engine and carburetor technology, they run like clockwork. If

you're into R/C, and haven't yet been bitten by the nitro bug, give it a try, you'll like it!

Thanks to the Georgia Hobby Center staff, who staged this successful, enjoyable event and to Bill Jeric of Kyosho, who continues to organize these races. Thanks also to John Thawley, who kept everything running smoothly. Next stop...Detroit. ■

**Action on the grid as Tim Chin of M-Power/BMT demonstrates his unusual "crane-style" starting-line procedure.**



Radio	Body	Tires (f/r)	Sponsors
JR	Stock	Boss TR 88F1	Team Losi, Kyosho, Paris Racing, JR Propo, Oakley, Brigitte's Babooshka Club
Airtronics	Andy's	Losi rib/mini-pins	Team Losi, Kyosho, Airtronics, Paris Racing, Andy's, Bangkok Gardens, Acme Apron
Futaba	Stock	Kyosho BSW 47/40	Kyosho, Palm Springs Grade-All
KO	Stock	Kyosho BSW 47	Kyosho, O.S., Composite Craft, Team Losi, KO
Airtronics	Stock	Pirate X-pattern	Horizon Hobby, Team Pirate, Ron Paris Racing, Blue Thunder Fuel
KO	Stock	Kyosho BSW 47	Kyosho, KO Propo, Twister
Airtronics	Stock	Pirate X-pattern	OFNA, Tempo, Paris Racing, Pegasus Hobbies, O'Donnell Fuel
Airtronics	Stock	Boss	Pirate, Horizon, Airtronics, Jammin' Products, Team Losi, Bungee Jumpers Anonymous
KO	Sotck	Pirate X-pattern	ARCAR
Futaba	Stock	Pikes Peak	HUA Racing (Sweden), JP Racing (France) Medial Pro (France)

Radio	Body	Tires (f/r)	Sponsors
Futaba	Pro-Line	Losi radius/pin spikes	ADC/Composite Craft, Hobbico/Kyosho
Airtronics	Andy's	Losi rib/mini-pins	Team Losi, Kyosho, Airtronics, Paris Racing, Andy's Bangkok Gardens, Acme Apron
KO Propo	Stock	Losi rib/diamond spike	n/a
JR	Andy's	Losi rib/mini-pins	Team Losi, Kyosho, Paris Racing, JR Propo, Oakley, Andy's Mad Chemist Fuel Labs
Futaba	Stock	Losi rib/mini-pins	Kyosho, KO Propo, Twister
Futaba	A&L Chevy S-10	Losi rib/mini-pins	Team DuraTrax, Kyosho/Hobbico
Airtronics	Jammin' Lamborghini	Pro-Line/Losi	Losi, Ron Paris, OFNA, Pro-Line, Pegasus
Futaba	Parma	Losi radius/mini-pins	A-Main Racing, Dudgeon Racing, R/C Motorsports Pro Shop
Futaba	Schumacher Storm	Losi radius/med. spike	A-Main Racing, R/C Motorsports
Futaba	Kyosho Outlaw Raider Dodge	Losi rib/mini-pins	Hobbico, Kyosho, DuraTrax, Composite Craft

## A SPECIAL MESSAGE TO RETAILERS

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If you aren't already stocking Air Age magazines, please call us toll-free, and we'll let you know how they can make money for you.



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251 Danbury Rd., Wilton, CT 06897

R A C E R      N E W S

## HOT TRACKS



### TURBOS SPEEDWAY, OGDEN, UT

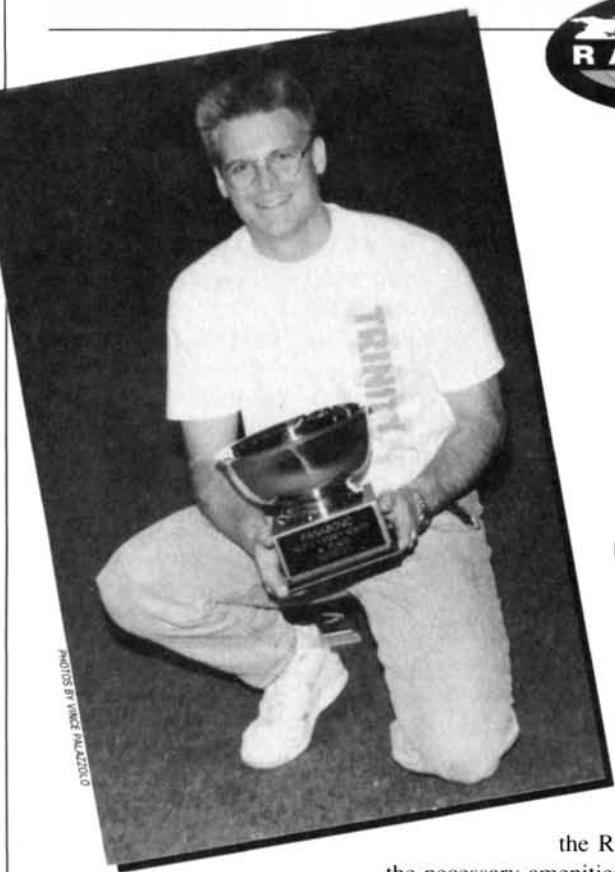
**W**HAT WOULD any self-respecting R/Cer do with an empty supermarket?—turn it into a speedway, of course! Trent Brown and Curtis Christensen—the owners of Turbos Speedway—invested a lot of time, money and effort in the creation of a facility that has a comfortable atmosphere for R/C enthusiasts of all ages.

Turbos Speedway R/C and Slot Car Track encompasses 22,000 square feet. There's an 8,000-square-foot on-road oval, an 11,000-square-foot off-road track, Hobby Express—a fully stocked R/C hobby shop—and a restaurant/snack bar that's appropriately named the "Speedway Cafe." Brown and Christensen are now installing a 155-foot, Blue King, 1/24-scale, slot-car track, a four-lane HO track and a separate hobby shop that's stocked with a variety of slot-car accessories. A banked oval is also in the works. A 14-foot enclosed observation tower is complete with a Pioneer CD sound system, a 100W PA system and a computer to track and score the races.

The on-road track's carpeted pit area has 30 pits, each with its own power supply. For off-road racers, there are 75 more pits in a separate section of the building. Turbos Speedway also offers 20 rental cars and trucks for newcomers—great idea, guys!

Stop by Turbos Speedway, 3135 Harrison Blvd., Ogden, UT 84403, or call them at (801) 621-4013. They're open daily from 10 a.m. to 10 p.m. ■





PHOTOS BY VILLE

# 1992 ROAR 1/12-Scale

By JOHN THAWLEY

**F**OR SPEED, precision driving and close, wheel-to-wheel racing, the '92 ROAR Indoor Nationals in Detroit, MI, was the place to be. Sponsored by Powerline, the event had 100

the Radisson Airport Hotel, which had all the necessary amenities to make racing enjoyable. The ball-

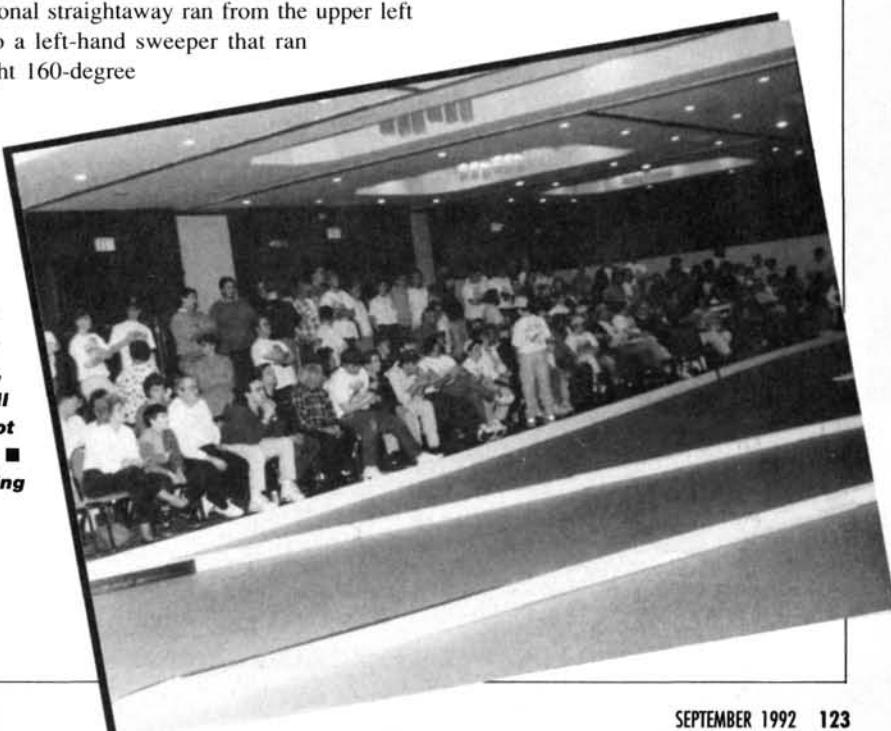
room was the perfect place for an 80x40-foot track. From the drivers' stand, which was set up on an elevated stage several feet back from the track, you could see all the turns clearly. Spectators were comfortably seated at the rear of the track, facing the drivers.

## THE TRACK

The host club, Team SEMROCC, brought in more 12,000 pounds of equipment for this event. First, a special sub-floor was constructed of a layer of 3/4-inch-thick tongue-and-groove particle board over 8-foot-long strips of 1x3-inch pine. Each board was screwed to the pine in nine places. The gray Ozite carpet was installed by professionals. These efforts resulted in an absolutely flat racing surface and a perfect track.

The track design was unique. A diagonal straightaway ran from the upper left corner to the lower right. This led into a left-hand sweeper that ran back toward the top of the track. A tight 160-degree right turn sent the drivers into a right-hand sweeper, which took up the width of the track and was followed by a hair-raising chicane in

**Right:** it was standing-room-only at this year's ROAR Nats; the ballroom at the Detroit Radisson was jam-packed with racers and spectators. ■ **Above:** with his 3rd-place finish at the Nats, Joel Johnson wrapped up the overall points battle with the top Modified spot in the Panasonic Triple Crown Series. ■ **Top right:** Willy Decker's Stock winning Corally car.





# 1/12-Scale Nats

front of the drivers' stand. A 180-degree right led into a short shoot that ran parallel with the straightaway and switched back in a sweeping 320-degree turn at the bottom, left-hand side of the track. A gentle chicane returned the cars to the main straight.

The track looked easy, but looks can be deceiving. This circuit created extremely fast corner-

to-corner racing; passing had to be done precisely and carefully.

## RACING AMENITIES

To limit confusion and keep the event running on time, the racing schedule was broadcast on the TVs in the hotel rooms. The efficient system that was used to run the impound ensured that radios were waiting for the drivers in tech when they arrived for their heats. Racing officials affixed the drivers' time sheets to their cars while the drivers marshalled. Instead of the usual handout T-shirt, SEMROCC spent a little more to give each participant a commemorative pit towel—truly first-class treatment.

## PRACTICE

Friday's practice was organized according to the T-time system, which has become standard at Triple Crown Series races because it allows all drivers equal access to the track. SEMROCC official Cindy Cyril virtually eliminated waiting lines by assigning drivers the next available time while they were still running practice sessions. Most drivers were able to make five or six practice runs.

## STOCK QUALIFYING

Qualifying started on Saturday; four rounds of Stock and three rounds of Modified were scheduled. With 145 Stock entries, this schedule left no room for

*The drivers used their rooms as pit space because they could keep track of the schedule on TV. Here, Tony Neisinger does some last-minute wrenching.*



## Stock

Fin.	Qual.	Name	Chassis	Motor	Batteries	Front Tires	Rear Tires	ESC
1	1	Willy Decker	Corally		Bullet	PD	Corally Gold	Novak M5
2	7	Andy Power	Associated 12LW	h	Stage III	TM green	TM green	Novak M5
3	2	Everett Pietras	Corally	a	New Wave	Corally silver	Corally gold	Tekin 411P
4	10	David Heath	Woods Xterminator	n	Fantom	TM green	TM green	Tekin 411G
5	3	David Chester	Associated 12LW	d	Sanyo SCE	Associated	Associated	Novak M1c
6	6	Steve Boice	Woods Xterminator	o	Advantage	TM green	TM green	Tekin 411P
7	9	Mike Marshall	Woods Xterminator	u	Power Push	PD	PD	Novak
8	4	Anthony Lewis	Delta Pro	t	Max-Cell	Pro Star silver	Pro Star green	Tekin 411G
9	8	Greg Klugh	Associated 12L		Bullet Matched	ASC	ASC	Novak M1c
10	5	Matt Mackin	Associated 12LW		Power Push	PD	PD	Tekin 411P

## Modified

Fin.	Qual.	Name	Chassis	Motor	Batteries	Front Tires	Rear Tires	ESC
1	8	Frank Calandra	Corally SP12G	Trinity	Trinity	TM	TM	Corally MMS II
2	3	Tony Neisinger	Associated 12LW	Reedy Mr. A	Max-Cell	TRC Yokomo	TRC Yokomo	Novak M1c
3	1	Joel Johnson	Tecnacraft 12LW	Trinity	Trinity Pushed	TRC ZR-1	TRC ZR-1	Novak M5
4	5	Terry Rott	Associated 12LW	East Coast	East Coast	TRC ZR-1	TRC ZR-1	Novak M1c
5	9	Chris Doseck	Stealth 12	CAM Supermod	Team Arlington	TRC ZR-1	TRC ZR-1	Novak M1c
6	4	Jon Orr	Corally	Twister	Arlington	n/a	n/a	Novak M1c
7	2	Mike Blackstock	Associated 12LW	Reedy Mr. A	Stage II	TRC ZR-1	TRC ZR-1	Novak M1c
8	7	Jeff O'Malley	Associated 12LW	Bud's	Power Push	TRC ZR-1	TRC ZR-1	Novak M5
9	6	Rick Hohwart	Associated 12LW	Peak Perf.	Team Orion	Yokomo	Yokomo	Novak M5
10	10	Steve Radecky	Associated 12LW	Bud's	Power Push	TRC ZR-1	TRC ZR-1	Novak M5

error. Owing to the consistency of the '91 ROAR-legal handout motors, the races were close; it was stock-class racing at its finest!

Willy Decker, who has been this year's dominant force in on-road stock racing, immediately made a TQ run that was a full

lap faster than any other run. After the first round, the top Stock finishes ranged from 42/8:10.95 to 39/8:01.62. In round two, the field tightened. Decker's TQ run endured, and the bubble time

moved to 40/8:06.70 with David Chester's 10th-spot drive.

In round three, the drivers cranked out 40-lap runs. (Without that many laps, you couldn't even make the C-Main.) Decker

remained on top with his first-round run, and Brad Hughes rounded out the 40-lap runs in 21st position. A few more drivers made 40-lap runs in the fourth round, but no one came near Decker's TQ run.

#### MODIFIED QUALIFYING

The first round of Modified was tight. With an early 44/8:06.07 run, crowd favorite Joel "Magic" Johnson walked away with the TQ honors. Tony Neisinger pulled up just behind him with 44/8:07.74, and Terry Rott rounded out the top 10 with 43/8:04.25. In round three, the Magic Man again lived up to his name by beating his own TQ result with a run of 44/8:00.71—just a heartbeat off 45 laps. The only 43-lap run that held in the top 10 was Rick Hohwart's 43/8:00.02.

As the qualifying progressed, the motor builders began to figure out the unique track, and



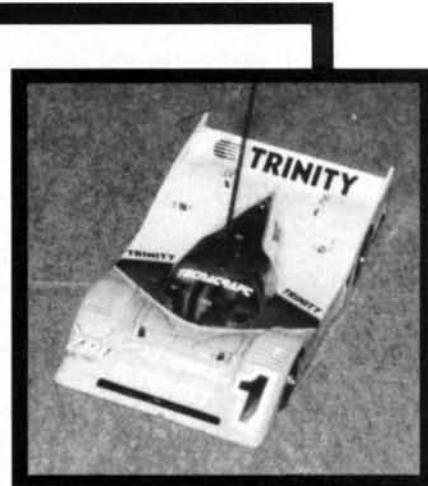
**For Willy "the Enforcer" Decker, 1992 has been a great year. He TQ'd and won the Stock A-Main at the Nats, and he emerged victorious in the Stock Class of the Triple Crown Series.**

**Body**  
Stock  
Associated Nissan  
Associated Nissan  
Bud's Nissan  
BBR Lotec  
Associated Nissan  
Bud's Nissan  
Bud's Lite Nissan  
BBR Lotec  
Bud's Nissan

**Sponsors**  
Team Class, Du-Mor, Bullet Batteries, Paragon  
Stage III, TM Tires, Scott Williams  
Team Class, Du-Mor, New Wave Cells  
Woods Racing, Fantom, TM Tires, Falcon and the ARA  
n/a  
Woods Racing, Advantage, Fantom, TM Tires  
Bud's, Power Push, Woods Racing  
Max-Cell, Team Class, GPA Hobbies  
Team Class, HPI, BBR, Scale Auto Sports, Kyosho,  
Racer's Choice, RSR, Quarterflash, Robinson Racing  
Bud's, Power Push, American Modeler

**Body**  
Andy's Lotec  
Associated Nissan  
Associated NPT-90  
Associated Nissan  
Associated Nissan  
Associated Nissan  
Associated Nissan  
Bud's Nissan  
Associated Nissan  
Bud's Nissan

**Sponsors**  
Team Class, Trinity, Du-Mor, Class Recreational Products, Frank Sr.  
n/a  
Trinity, TRC, Novak, Tecnacraft, Airtronics, Composite Craft, Team Losi  
Havoline Texaco, East Coast, Advantage, TRC, Novak, Associated, Bud's, Star Force, Bolink  
CAM, TRC, Associated, HPI, Du-Mor, Novak, KO Propo, Team Arlington, Tecnacraft, Bud's  
Twister, Team Arlington, Du-Mor, Novak  
Associated, Reedy, Novak, Airtronics, Stage III, Du-Mor, Bud's, TRC, Paragon  
Bud's, Power Push, American Modeler  
Peak Performance, Associated, Futaba, Novak  
Bud's, Power Push, Novak, Associated



**Here's Joel Johnson's Associated/Tecnacraft 12LW. He TQ'd in the Modifieds, but a pileup prevented him from winning.**

**For speed, precision driving and close, wheel-to-wheel racing, this was the place to be.**

# 1/12-Scale Nats

the lap times reflected this. There were seven 44-lap runs in the second round. Neisinger moved up to the third slot with 44/8:02.51, and Dwight Smith secured the 10th slot with 43/8:01.07. In the final round on Sunday morning, the drivers kissed the 43-lap runs good-bye. The first car was separated from the last by about 8 seconds.

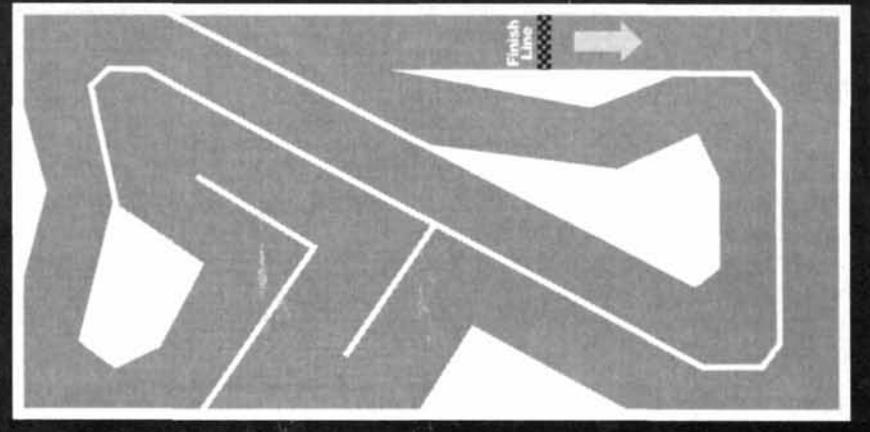
## DA MAINS!

The intensity of qualifying spilled over into the Mains, where the competition was hot! The unique track really allowed the drivers to seed themselves among others of



Just before the A-Main, drivers and mechanics topped off their batteries and applied traction compound to their tires at a table supplied by Novak.

***The intensity of qualifying spilled over into the Mains, where the competition was hot!***



***The track looked easy, but it created extremely fast corner-to-corner racing; passing had to be done precisely and carefully.***

equal skill, and this made for great racing.

The Stock A-Main was everything you could want. Although the starting grid was

staggered and spaced, this was one of the few Mains in which the cars hammered

*(Continued on page 142)*

## 1991-92 Panasonic Triple Crown Series

Each year, from November through April, 1/2-scale is the class of choice in the Midwest and the Northeast, and the Panasonic Triple Crown is part of the reason why. With 350 entries in Cleveland, OH, for the U.S. Indoor Champs, 240 in Grand Rapids, MI, for the Winter Champs and another 240 for the ROAR Nats, it's safe to say that the proof is in the pudding. These three events make up the Series, and the Detroit Nats race was its third and final leg. Each Triple Crown driver is awarded points based on his finishing position in each event. The driver who accumulates the most points wins the Series.

The Triple Crown was the first R/C event that Panasonic had ever sponsored. It was very exciting to see this company become involved in our sport, and they couldn't have chosen a better inaugural venture. With the previous success of the Series and the successful history of the ROAR host clubs—NORCAR, Rivertown Racers and Team SEMROCC Racing—Panasonic was guaranteed quality racing events.

### FINAL STANDINGS

#### Modified

Name	Point Total
Joel Johnson	1,497
Frank Calandra	1,495
Terry Rott	1,490
Mike Ebert	1,488
Tony Neisinger	1,486
Mike Blackstock	1,485
Jon Orr	1,484
Steve Radecky	1,481
Chris Doseck	1,480
Bob Schoenau	1,478

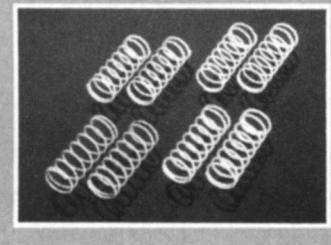
#### Stock

Name	Point Total
Willy Decker	1,500
Aaron Buran	1,490
Mike Marshall	1,488
Anthony Lewis	1,485
James Arnold	1,483
Everett Pietras	1,481
Steve Boice	1,481
David Heath	1,478
David Chester	1,478
Brett Polivka	1,473

# SPEED SHOP

**PSE****On-Road Front Suspension Springs**

**P**SE knows what you want. These front springs for Associated shocks are offered in non-standard sizes to give you more freedom to set up your car for any track condition. Fit most on-road cars.



Part nos. 95200 (.017 red); 95201 (.019 yellow); 95202 (.021 blue); 95203 (.023 green.)  
Price: \$2.50/pair  
Parma Int'l., 13927 Progress Pky., North Royalton, OH 44133.

**TMS PRODUCTS**  
**Short-Track LTO**  
**Chassis for**  
**Associated 10L SS**

**D**eveloped by TMS and Team Thundercars, the ST-LTO chassis is the first one that's designed specifically for short oval tracks. It works best on flat or banked tracks on which the average lap time is less than 7 seconds. It has a short wheelbase with a modified wheel width, so it's easier to drive and faster in the corners. It's made of rigid, durable 0.100-inch-thick graphite. (This chassis is also available in a black G-10 fiberglass.)



Part nos. TMS 209 (graphite); TMS 219 (fiberglass).

Prices: \$59.99 (TMS 209); \$34.99 (TMS 219).

TMS Products, 1840 W. 220th St., Unit 360, Torrance, CA 90501.

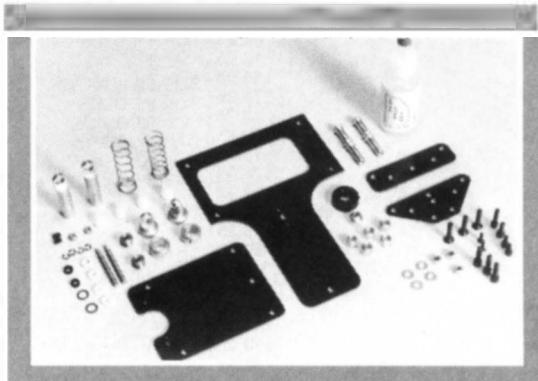
**PRO-LINE****Toyota Stadium Body**

**P**ro-Line's new low-profile Toyota Stadium Truck Body is racing past the competition. Made of durable, clear Lexan, this performance-tested, race-proven body fits the RC10T and all other 1/10-scale trucks.

Part no. 3023

Price: \$19.95

Pro-Line USA, P.O. Box 456, Beaumont, CA 92223.

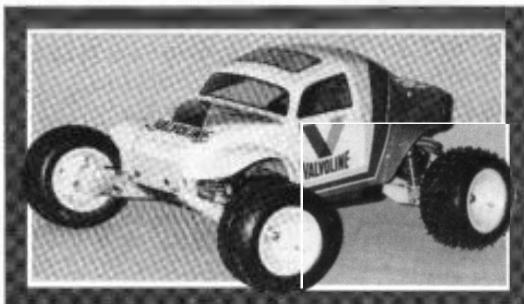
**BOLINK**  
**'91 Sport Conversion Kit**

**D**o you own a Bolink '91 Sport? Are you ready to move up to Super Sport performance? This kit makes it easy! It includes everything that you'll need to convert the rear suspension of the '91 Sport to that used on the Bolink Super Sport: pivot-ball suspension parts, dual shocks, adjustable coil-over springs and all the necessary hardware.

Part no. BL-5075

Price: \$39.95

Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30245.



### DAHM'S RACING BODIES "Buggsy" Racing Bug Body

Here it is—a new, exciting, aerodynamic "fastback" racing bug body! The super-narrow "Buggsy" fits the RC10T like a glove—so tightly that you can actually attach the body to the sides of the aluminum tub frame with Velcro® to keep dirt out! The Buggsy also includes mounting instructions for the Outlaw Raider. It's made of light, strong 0.030-inch-thick GE Lexan and has fine detailing, a chopped top, sleek fenders, a sunroof, rear windows and a large "whale-tail" spoiler.

Part no. DO80

Price: \$19.98

Dahm's Racing Bodies, P.O. Box 360, Cotati, CA 94931.

### DYNAMITE Battery Packs

Racers need more from their battery packs, and these new Dynamite packs can give it

to them. Loaded with either 1700mAh SCRC or 1400mAh SCR cells, these premium-quality, rugged Sanyo packs offer high capacity, high voltage and low resistance. They're great for stock-class racing, and they're less expensive than matched packs. Choose from 6-cell flat, 6-cell saddle, 7-cell flat, or 7-cell hump configurations.

Horizon Hobby Distributors, 3102 Clark Rd., P.O. Box 6029, Champaign, IL 61821.



### DYNAMITE MicroPro Receiver

Dynamite's new MicroPro is the smallest, lightest 2-channel AM receiver on the market. Measuring just 1.44x0.56x0.82 inches, the MicroPro is highly selective and can reject interference in even the toughest "glitch-pit" environments. It's available in 27MHz and 75MHz with either Futaba J or Airtronics connectors, and it comes with a one-year warranty.

Horizon Hobby Distributors, 3102 Clark Rd., P.O. Box 6029, Champaign, IL 61821.



### LRP ELECTRONIC LRP Racing Motors



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### PIRATE M1

(Continued from page 96)

I'd like to thank Cliff for Letting (ha ha) us get a better look at his winning ride.

\*Here are the addresses of the companies mentioned in this article:  
OFNA Racing Division, 18 Technology, Ste. 159, Irvine, CA 92718.

Paris Racing, 4254 Independence St., Chino, CA 91710. OPS; distributed by Shamrock Competition Imports, P.O. Box 26247, New Orleans, LA 70186.

JB Weld Co., P.O. Box 483, Sulphur Springs, TX 75482.

Power Curve; distributed by Advanced Racing Technologies, 460 Cypress Ln., Ste. F, El Cajon, CA 92020.

RCPS, 18312 Gifford St., Fountain Valley, CA 92078.

RPM, 14978 Sierra Bonita Ln., Chino, CA 91710.

Associated Electrics Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.

Airtronics Inc., 11 Autry, Irvine, CA 92718.

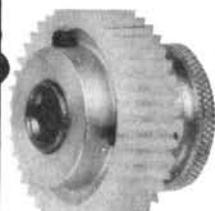
Novak Electronics Inc., 128-C E. Dyer Rd., Santa Ana, CA 92707.



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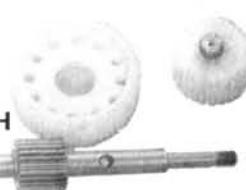


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## ROAR NATS

(Continued from page 126)

the first two turns. This allowed Andy Power to push his car to the front from a 7th-place starting position. He tried to stretch out the lead, but bobbled early on. As everyone expected, Decker moved to the spot he has

claimed all season. Power and Everett Pietras both battled to catch him—right down to the wire—but Decker's Corally car took the title with a 41/8:0.46 run. Power settled for 2nd with 41/8:03.91, and Pietras took 3rd with 41/8:04.75.

The lineup on the Modified starting grid

was a familiar sight: Trinity's point man Johnson sat up front with Reedy/Associated's Mike Blackstock in 2nd. Johnson got the jump and masterfully pulled away, while the rest of the field settled in for the long run.

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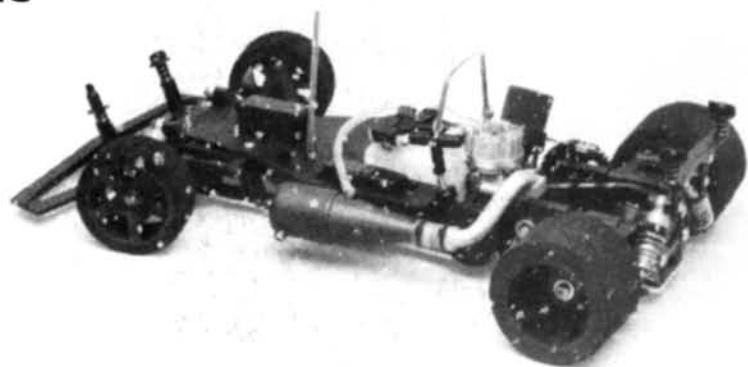
(Continued on page 149)

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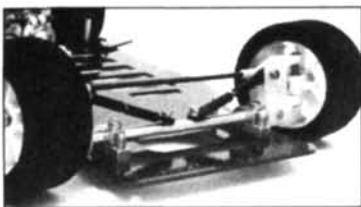
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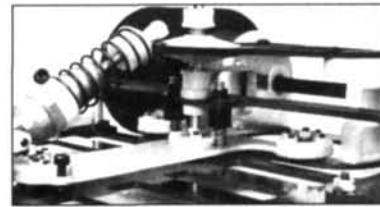
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## ROAR NATS

(Continued from page 142)

must make very disciplined 8-minute drives. Panasonic batteries have become the batteries of choice in this type of racing, and the 10 Modified drivers at this event all knew how to get the most out of them.

Midway through the race, Blackstock challenged Johnson, who seemed to remain unflappable. They diced a little here and there, but at the 6:45 mark, disaster struck. In what seemed an unbelievable mishap in a race of this caliber, Blackstock's 12LW ran into the back of Johnson's car. And it happened in the corner that was the hardest to marshall, too. Neisinger went by just as Blackstock got free of the wreck. Johnson was left behind in the middle of the pack.

Soon, Blackstock and Neisinger tangled, and this caused several cars to pile into them.

After the most hectic minute of racing I've ever seen (I said "hectic," not "pretty"), Frank Calandra dove for the finish line just half a second ahead of Neisinger, while Johnson charged his way up to finish half a second behind Neisinger. Seven cars finished on the same lap. It was wild, to say the least!

Congratulations to the new ROAR National Champions Willy Decker and Frank Calandra, and thanks to the Team SEMROCC crew for a great Nats event. Both organizations work hard to make racing better. Thanks also to Panasonic for sponsoring the event, and congratulations to the others who won. All of you earned it! ■

## LETTERS

(Continued from page 9)

among gas, electric and slot cars, you know where I stand! JB

## WOMEN UNITE!

I'm writing in regard to all the pictures of women in teeny bikinis in your magazine. It's discriminatory, and I don't think it's right. Girls buy your magazines too, and I, for one, don't like to see junk pictures in an otherwise OK publication. I believe men and women are equal, so what's the use of taking pictures of a lady's bottom (Miss Thunderdrome, page 78, February '92)?

ANGELINA BONTA  
Reno, NV

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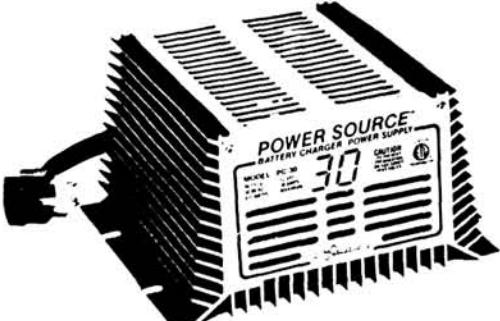
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## LETTERS

(Continued from page 149)

You're absolutely right, Angelina. It's time for the women to demand equal time. I hereby decree that for every shot we publish of a woman in a "teeny bikini," we'll print one of a man, too—starting with this issue. Check out Jay Halsey's bungee-jumping adventure in this month's "Inside Scoop." (Nice tan! Woof!) In addition, I promise to personally inspect all photos of scantily clad men submitted to Car Action. (It's a tough job, but somebody has to do it!) Any volunteers for a centerfold? Jack? Joel? Kyle? Cliff? How about it, boys? We're even trying to get spy shots of Masami in his sumo wrestling outfit. Watch out! Note: before you get your hopes up, girls, let me break it to you now: candid shots of the Car Action boys at our Christmas party will never see print; this is, after all, a family magazine! LA

## GEARING TO GO OFF

I've been involved in R/C for two years and, for about five months, I've been racing an RC10 Team Car on a carpet oval. I use a Trinity Slot Machine motor with Bud's Hollow brushes, regular 1400mAh SCR batteries and a Futaba MC112B controller. (I plan to buy a Tekin 410S.) My track has just added a small off-road course with a lot of turns. How should I gear my car for it? Also, what are some good hop-ups for my car? Keep up the good work.

JOSH OLLILA  
Cortland, OH

Josh, I suggest that you start with a gear ratio of 8.5:1, using a 21-tooth pinion gear and the 81-tooth spur gear that comes with the Team Car. From there, you can try larger pinion gears (go up one tooth size at a time) until your motor becomes excessively hot during a 4-minute run. When this happens, you've found the largest pinion that you can use with your motor.

(Continued on page 160)

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## LETTERS

(Continued from page 160)

### CHASSIS BASHING

In the June '92 "Letters," you answered a question about the differences between fiberglass and graphite chassis. You noted that fiberglass chassis aren't good for on-road, and that offends me because I recently bought the Associated RC10L with the fiberglass chassis!

JASON WALKER  
Colorado Springs, CO

*Whoa! Wait a minute, Jason. We never said that fiberglass chassis aren't good for on-road racing. In fact, I've seen many on-road cars with fiberglass chassis beat those with graphite chassis. For experienced racers, however, graphite can provide a slight advantage. It's stiffer and has better "memory," i.e., the ability of a material to return to its original shape after it has been flexed or bent. If you're racing against drivers with similar skills, and the competition is very close, then you may want to try a graphite chassis. It isn't essential, though, so don't worry about it.* AS

(Continued on page 179)

**Fine Finishes**

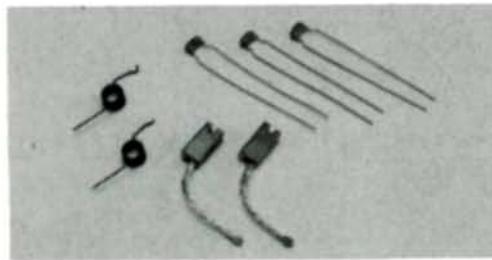
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## LETTERS

(Continued from page 175)

### ACTION PACKED

Fellow dirt slingers! A few months ago I wrote to you and requested more action shots in your magazine. (I think I have that right, since I'm a subscriber.) Well, after seeing the Florida Winter Champs coverage in the July issue, all I can say is "Wow!" I can almost taste the clay! Also, the shootout between the 2WD off-roaders in your Action Series Off-Road issue deserves two thumbs up! I've been waiting for a comparison like that.

On a personal note, my son and I race trucks in Albany, GA (I have a Team Losi Junior T, and he has a Traxxas Hawk). R/C Parent Wimp Syndrome doesn't apply to this house! See ya at the track!

GREG & BRETT BULLMAN  
Team Bull, Valdosta, GA

We aim to please! Thanks for the kind words, but with a name like yours, shouldn't you trade in your trucks for matching Tamiya Bullheads?

LA

### AN EMOTIONAL RESPONSE

Whenever I read your magazine, I become emotional because I don't have enough money to buy a Team Losi JR-X2 or a Jet Stream 800 boat. I own a Kyosho Viper boat and a Raider ARR with a Tamiya ESC and a Mega motor, but I can't race or compete with the hot cars. Your magazine is great, but because I get so emotional, I may have to stop reading it. I think other kids feel this way, too. It would be very kind of you to print this letter.

POSTEN HOUSER  
Charlotte, NC

Well, Posten, you could start a support group to help you through this emotional time, but Dr. Li doesn't really see what you have to complain about. You own two perfectly good R/C vehicles; some people don't own any. Find others who drive cars that are on the

(Continued on page 190)

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## BOLINK

### LTO SS Chassis Extension Kit

Lengthen the wheelbase of an LTO SS or an LTO QC by  $\frac{1}{4}$  inch with this kit. It has a longer, more flexible T-plate and a longer rear body/shock mount so that the shock-mounting layout will remain the same.

Part no. BL-5204

Price: \$12.95

Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30245.



## SCHUMACHER

### Cougar 2

The efficient Cougar 2 is designed to be a winner out of the box. It has a low-inertia transmission, a low center of gravity, a CAD/CAM-designed suspension geometry and a 4-wheel independent suspension with double wishbones and oil-filled shocks to handle even the worst terrain. The Cougar 2 comes with Schumacher Cat tires that provide incredible acceleration and cornering abilities. If you take speed seriously, the Cougar 2 is the car for you.

Schumacher Inc., 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634.



## SUNDOWN PERFORMANCE PRODUCTS

### Gear Box

No matter what gearbox you have in your R/C car, this is the Gear Box you should have in your toolbox. It has labeled, indexed sockets for two spur gears and up to 15 pinion gears, and it comes in 32-, 48-, and 64-pitch versions.

Part nos. 091832 (32-pitch—holds 10, 9- to 18-tooth pinions); 122548 (48-pitch—holds 14, 12- to 25-tooth pinions); 183264 (64-pitch—holds 15, 18- to 32-tooth pinions).

Sundown Performance Products, 605 Lucia Ct., Berthoud, CO 80513.



## PARAGON RACING PRODUCTS

### 64-Pitch Pinion Gears

Paragon's new, ultralight, high-quality 64-pitch pinion gears minimize "flywheeling" and improve throttle response. They're precision-machined and treated with super-hard titanium nitride, and they're concentric, so they run quietly and efficiently. For improved balance and added assurance, they have two opposing setscrews. They're available in tooth sizes 18 through 30 (additional sizes to be released), and the number of teeth is marked on each.

Part nos. PG018, 19, 20, etc., through PG030.

Price: \$5.50

Paragon Racing Products, 690 Industrial Cir. S., Dept. CA2, Shakopee, MN 55379.



## DAHM'S RACING BODIES

### 1992 Olds Pro Stock

Dahm's new '92 Olds Pro Stock drag-racing body has super-aerodynamic styling, fine details, a molded-in hood scoop, an adjustable, bolt-on Pro stock wing and dual parachutes. Made of light, strong, .030-inch-thick Lexan, this racing body is shown on the  $\frac{1}{10}$ -scale Pro stock car.

Part no. D104PS

Price: \$20.98

Dahm's Racing Bodies, P.O. Box 360, Cotati, CA 94931.



## HORIZON HOBBY DISTRIBUTORS

### JR Propo 471 Servo

JR Propo's 471 servo is a "cored" version of the 4721 servo. It uses the latest surface-mount technology and has "zero deadband," i.e., it doesn't draw any current when it's in the neutral position. It has JR's most advanced cored motor, which is geared to provide astounding performance capabilities for a standard-size servo: torque—119.63 ounce/inches; speed—.22 second/60 degrees. The 471 is designed for use in  $\frac{1}{4}$ - and  $\frac{1}{8}$ -scale cars.

Part no. JRPS471

Price: \$79.99

Horizon Hobby Distributors, 3102 Clark Rd., P.O. Box 6029, Champaign, IL 61821.

## PARAGON RACING PRODUCTS

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13	14	15	16	17
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### PARAGON RACING PRODUCTS

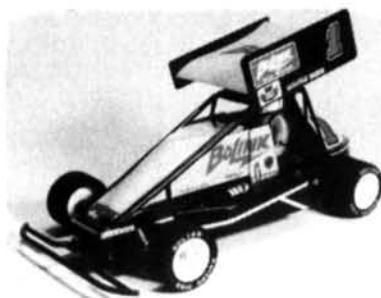
#### Gear ID Stickers

Save time and prevent eye strain by labeling your pinion gears and gear caddy with Paragon's Gear ID Stickers. Made of a new foil material, they last longer and adhere better. There are enough numbers on each pad to label a set of 64-, 48-, or 32-pitch gears.

Part no. ID837

Price: \$2.50

Paragon Racing Products, 690 Industrial Cir. S., Dept. CA2, Shakopee, MN 55379.



#### BOLINK

#### Outlaw Sprint Car Kit

This Outlaw is wanted in every state! Based on Bolink's Invader chassis, this kit includes an independent front suspension with shocks; a T-plate-type rear suspension with one shock; a stainless-steel diff axle; aluminum motor mounts; the Outlaw Sprint Car body with front and rear wings; and a driver! The kit comes as a complete rolling chassis.

Part no. BL-1361

Price: \$139.95

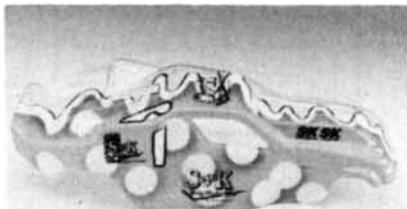
Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30245.



#### FUTABA 2V Attack III Radio

Futaba's sleek, new 2V Attack III 2-channel radio has 20KHz narrow-band signal spacing, and it meets AMA and R/CMA requirements for narrow-band systems. The unit's aluminum-alloy control sticks have easy-to-grip, knurled ends that provide positive control, and both gimbals have neutral-trim adjusters. The five-LED early warning system continuously monitors the batteries, and a beeper signals when they should be replaced. The transmitter requires eight AA alkaline batteries (not included).

Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718.



#### S&K RACING PRODUCTS

#### Airs Bodies

S&K's new Airs bodies will obliterate the competition! Air is forced through an air channel from the front of the body to the rear. This patented design reduces motor temperatures by up to 50 degrees, increases speed, improves run times and prevents the motor brushes from wearing. Airs bodies are also extremely light; the truck version weighs half as much as other truck bodies!

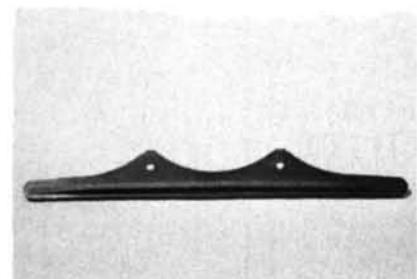
S&K Racing Products, 215 S. Market St., Oskaloosa, IA 52577.



#### McALLISTER RACING 1/10-Scale Narrow Olds

McAllister Racing introduces the '92 Olds Winston Cup stock-car body for narrow superspeedway chassis. It has the same great scale appearance and slick aerodynamics that made the wide Olds such a hit.

Part no. 3-162



#### Molded Bumper

McAllister Racing's new lightweight molded bumper will protect your car's front end. Although it's designed for chassis with 3-inch, center-to-center, front body-post arrangements, you can modify it to fit any 1/10-scale pan chassis.

Part no. A-438

McAllister Racing, 1000 N. Humphreys St., Ste. 204, Flagstaff, AZ 86001.

Descriptions of new products appearing on these pages were derived from press releases supplied by the manufacturers and/or their advertising agencies. The information given here doesn't constitute endorsement by *Radio Control Car Action*, nor guarantee product performance or safety. When writing to the manufacturer about any product described here, be sure to say you read about it in *Radio Control Car Action*.

# Radio Control Car Action

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# BACK ISSUES



## JUNE '92

**FEATURES:** Car Action's Car of the Year; Andy's Pro Race Kit; Wide vs. Narrow; 1991 NR/CTPA Worlds; NORRCA On-Road Nats; Install Radio Gear, Part II; Novak Digi-Peak Chargers; Inside Joel Johnson's Cleveland Winner; Superspeedway Shootout II; Start Me Up!

**TRACK REPORTS:** Kyosho 4Runner; Mugen Super Sport; Tamiya Nissan Skyline GT-R.



## MAY '92

**FEATURES:** Car Action's Top 10; Cars, Readers' Rides, Drivers, Accessories, Hop-Ups, Pit Tips, Tracks, Still More Top 10; Competition Electronics Turbothirty; Dirt Oval Champs; Install Radio Gear, Part I; Cleveland Indoor Champs; Reedy Race of Champions; Make an External Battery Pack; ERP Master Zapper.

**TRACK REPORTS:** Schumacher Cougar II; S&M Cobra SS; Tamiya Super Astute.



## APRIL '92

**FEATURES:** TD Enterprises Pit-Box II; Car Action Interview: Masami Hirosaka; Thompson Electronics Motor Master Dyno; Inside Masami's '89 Stealth Car; Get Started in R/C, Part IV; NORRCA Carpet Oval Nats; Project Blue Eagle; Home-Built Project; ZZ Top Pocket Eliminator.

**TRACK REPORTS:** Team Losi JRX-Pro SE; McAllister "OO"; Royal Hyperspeed Kawasaki; Moscow Missile; Bolink LTO SS.



## MARCH '92

**FEATURES:** 25 Top Toolbox Items; Home-Built Project: Nitro Sprinter; Kyosho 1/8-Scale World Challenge; Inside The World's Fastest R/C Car; Sky Driving. Track Directory.

**TRACK REPORTS:** Kyosho USA-1 Nitro Crusher; Yokomo Works '91; Kyosho Ferrari F40; Serpent Impact 10.



## FEBRUARY '92

**FEATURES:** New for '92; Kyosho Honda NSR 500; Home-Built Project; Cobra Trackside Tire Truer; 25 Add-on Performance Parts; Project 10L Superspeedway; Welcome Home Race; Racing Servo Roundup; 1991 Roar-Legal Stock Motor Shootout; Sledgehammer Hop-Ups; Get Started In R/C, Part III

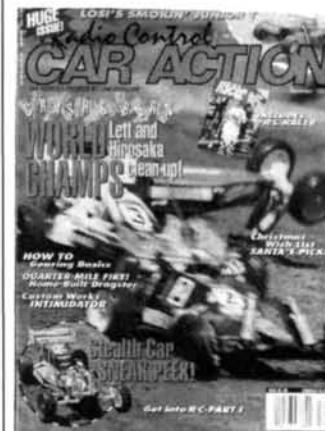
**TRACK REPORTS:** Traxxas TRX-1; Kyosho Lazer ZX-R; Hyperdrive Hyper 10 Cars; Associated RC12LW.



## JANUARY '92

**FEATURES:** Reader's Ride of the Year; Time Warp; Tamiya Sand Scorcher; Home-Built Project; How to Build and Adjust Ball Diffs; Aristo-Craft Charger; Get Started in R/C, Part II; Track Directory; 1992 Catalogue Collection.

**TRACK REPORTS:** Kyosho Prototype XJ-220; Schumacher Nitro 10; McAllister Fly'n "M"; TRC/Compositecraft Lynx II Elite SS.



## DECEMBER '91

**FEATURES:** Tech Tips; Get Started in R/C, Part I; Christmas Wish List; Gear It Up; Kyosho/Trinity 1991 IFMAR Off-Road World Champs; You Don't Have to Fight City Hall to Win; Home-Built Project; Radio Control Racer: Intro; Andy's R/C Products 1991 Roar On-Road Nats; Speed Shop; Post-Race Maintenance; How to Build a Diffmeter; Hot Tracks; Track Directory.

**TRACK REPORTS:** Bolink '91 Sport; Custom Works Intimidator; Team Losi Junior T; Serpent Tenforce.



## NOVEMBER '91

**FEATURES:** Home-Built Project: Tekin Pro Dyno; Battery Blowout; Riding the Airwaves; Dynamic Damping; Radio Control Racer: New Section; 1991 TRC/Trinity ROAR Paved Oval Nats; IFMAR World Champs Cars; Car Action Interview: Cliff Lett; Project Lazer; Speed Shop; Track Directory; Associated RC10T Stadium Truck.

**TRACK REPORTS:** PB Sizzler; Parma Hemi Coupe.

## OCTOBER '91

**FEATURES:** Keep Your Stocker Screamin'; World Champs Update; Home-Built Project: Pocket Racer; SP-10 Updates; Zero-Loss is Boss; Body Detailing: Project Bulldozerhead; West Coast Monster Race; Shinwa Operate.

**TRACK REPORTS:** Kyosho Testarossa; Kyosho Triumph; Pirate M1; Parma Days of Thunder; Corally SP-12.

## JUNE '91

**FEATURES:** Interview: Gil Losi, Jr.; Project King Cab; Heavy Metal Conversion; Car Of The Year; RC10 Tranny Makeover; Electric Flight Explosion; 20 Hot Motor Tips; Basics Of Glow Engines; MK Engineering Magnum.

**TRACK REPORTS:** TRC PRO 10 Sport; McAllister MX-PRO; Kyosho Turbo Ultima II.

## DECEMBER '90

**FEATURES:** Christmas Wish List; Inside Cliff Lett's Winning Cars; Speedworks Sportman's Cup; Madcap Truck Conversion; Hough RC10 Conversion; NORRCA Off-Road Nats; ROAR Off-Road Nats; Catalogue Collection; Build a T-Bucket; Off-Road Wheel Roundup; Shock Waves.

**TRACK REPORTS:** Associated RC10 Championship Edition; Composite-Craft/TRC Lynx II Sport; Traxxas TRX-T Eagle.

## AUGUST '90

**FEATURES:** Days of Thunder; Budget Modified Motors; Speedworks Sportman's Cup Race; Inside Dobson's Car; Battery Dumping; Hot Rod Magazine R/C Nats; The Lavo System; Robbe Scarab; Basic Soldering. **TRACK REPORTS:** Panda Stadium Racer; Hiroba Toyota Celica GT Four; Max Trax Wedge; Tamiya Thunder Dragon QD.

## SEPTEMBER '91

**FEATURES:** Home-Built Project: Classic Camaro; Lavo Pro Dyno; Avoid the Frequency Frenzy; Trinity Slot Machine; Painting Lexan Bodies; Wroad Wrecker; Car Action '91 Thunderdrome Preview; MRP Bud Light Tunnel-Hull Racer; Competition Electronics Stockcap; Off-Road Shock Tuning.

**TRACK REPORTS:** Associated Team Car; Kyosho Outlaw Rampage; Traxxas Blue Eagle; Radio Review: Airtronics Caliber 3P.

## MARCH '91

**FEATURES:** RC10 Hyperdrive; New for '91; Second-Look Series: Optima Mid; Project Lynx; Kyosho 1/8-Scale World Challenge; How To Make a Winning Concours Interior; First Look: Tamiya Bullhead; Speedworks Sportsman's Cup; NR/CTPA World Championships; MIP's 4WD RC10, Part II; MRP Miss Budweiser.

**TRACK REPORTS:** Kyosho Porsche 911; Schumacher Cougar.

## NOVEMBER '90

**FEATURES:** 1990 JG Oval Nats Winners; On-Road Turbo Ultima; Project Clod Buster; Masami's Yokomo; Magic Motorsports Commutator Machine; JG YZ-10 Truck Conversion; Home-Built Project: Coca-Cola Dominator; JG Lazer Truck Conversion; Home-Made Tire Truer; Preview: Tamiya Ferrari F189; Second-Look Series: Kyosho Raider; MRC Nordic.

**TRACK REPORTS:** Kyosho USA-1; Kyosho Ultima II; Tamiya Saint Dragon.

## JULY '90

**FEATURES:** Bullet Racing RC-X2; Project Master Blaster; Kyosho 1/8-Scale Off-Road Challenge; Great Planes Marine Stinger; Inside the Winning Truck; Competition Electronics Linear Turbocharger; ROAR Truck Nationals; Project 10L.

**TRACK REPORTS:** Kyosho Slingshot; Tamiya Egress; Associated RC10L; Team Losi JR-XT.

## AUGUST '91

**FEATURES:** Inside Masami's Cars; Shinwa Motor Dresser Fet; R/C Facts & Fallacies; Home-Built Project: Primadonna Clod; Body Masking; IFMAR World Champs Preview; Kyosho's New Triumph; Pro-Line Ultima II Conversion; Winter Champs Winner; Pro-Line/C Car Action Cactus Classic.

**TRACK REPORTS:** Kyosho Penske PC-19; Schumacher RS 4X4; Traxxas Hawk; Tamiya Manta Ray.

## JULY '91

**FEATURES:** NORRCA/Mickey Thompson Grand Prix; Sneak Peek: Team Losi's Junior T; Home-Built Project: Flatbed Clod; Florida Winter Champs; Fusion Speed RC10; Battery Assembly Basics; Basics Of Differentials; Project Yokoma; Time-Warp: Tamiya XR311.

**TRACK REPORTS:** Tamiya Tyrrell 019 Ford; Corally SP-10; Schumacher Shotgun.

## JANUARY '91

**FEATURES:** Reader's Ride of the Year; Superspeedway Shootout—R/C Thunderdrome; Home-Built Project; Inside the Winning Thunderdrome Car; ERP Magnet Zapper; First Look: Team Losi JRX-Pro; Connector Inspector; Five Years of Car Action; Candies, Flakes & Pearls; NORRCA Dirt-Oval Nats; NR/CTPA Truck Pulls; Hobby Lobby/Graupner Systems.

**TRACK REPORTS:** Tamiya Hi-Lux; Tamiya Super-G; Robbie Firefox; Marui Big Bear.

## FEBRUARY '91

**FEATURES:** Time Warp: Tamiya B28 Sidecar; ROAR 1/8-Scale Nats; Holeshot; RC10LTO; Kyosho Hurricane; Kalt Whisper; Custom-Cut Graphics; Modified Motor Maintenance; Second-Look Series: Associated 10L; MIP's 4WD RC10, Part I; Canadian Off-Road Nats.

**TRACK REPORTS:** Team Losi JRX-Pro; Tamiya Ferrari F189; Kyosho Ultima Outlaw.

## SEPTEMBER '90

**FEATURES:** Foot Soldier; Associated Three-Piece Rims; Interview with Joel Johnson; Project Indy; Hobby Dynamics Cesa Offshore Electric; Don't Be Counted Out; Home-Built Project; The Intimidator; Pro-Line JR-X2 Truck Conversion; Sassy's Tamiya 4WD Aluminum Chassis.

**TRACK REPORTS:** Kyosho Formula 1 Ferrari; Traxxas RTR Bullet; Composite Craft/TRC Lynx II.

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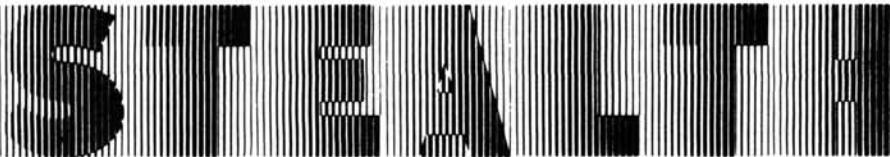


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## LETTERS

(Continued from page 175)

same level as yours and race one another to perfect your driving skills. Then get a job, work hard, save your money and buy the car of your dreams.

LA

## FAN MAIL

Thank you for producing such a fantastic magazine. It has helped me tremendously. In March '88, I bought a Tamiya Frog that came with an Acoms radio, a Sanyo SC pack and charge leads. I was happy with its performance. In April '89, I bought a Tamiya Boomerang, which was a step up from the Frog. Although I was pleased with its performance, I added a Technigold motor and an 8.4V battery. At that stage, I could outdo all of my friends' cars.

In December '90, I received my first issue of *Car Action* and, after reading it, I realized that I been left back in the dark ages. Everyone else seemed to have JR-X2s, RC10s, high-frequency ESCs and "megabuck" radios. I immediately sold both my cars and began to search for a new one. I was dumbfounded by the enormous range of cars, ESCs, radios, chargers, etc. I didn't know which car was right for me, and when I asked the man at the hobby shop for help, he just tried to sell me the most expensive equipment.

In the February '91 issue, you gave the JRX-Pro and the Tekin 310 such good write-ups, that I decided to try them. I also bought a Futaba Attack radio and a Buggy Master 20-turn motor. I created a full-on racing car with budget electronics, and it was the first one that put me in the big league. I raced it and finished in third place twice.

I continued to follow the reviews, advertisements and project articles in your magazine, and I decided to go all-out with my next car. I bought a TRC Lynx II Elite, the new KO EX-1 FM, a Tekin 410 high-frequency ESC, a Trinity 17-triple tri-rotor motor, a Hitec peak-charger and Sanyo SCEs. I couldn't have made these choices without the advice in *Car Action*. Without you, I'd probably still be caught in the dark ages. Thanks!

Your greatest fan of all time,  
JAMES DAVIDSON  
West Lakes Shore, South Australia

We feel great when people tell us that *Car Action* has helped them. Just because we showcase all the latest cars, trucks and accessories, however, doesn't mean that we think you must have the most expensive high-tech R/C items to enjoy the hobby—this is absolutely not the case! That's why we try to provide as much coverage of entry-level equipment as we do of the newest racing hardware.

FM